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=> FILE WPIX
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    PLEASE SEE
http://www.stn-international.de/stndatabases/details/dwpi_r.html <<<

=> D QUE
L41        2056 SEA FILE=WPIX ABB=ON  PEEK OR (POLYETHER(W)KETONE# OR POLYETHER
                (W)POLYKETONE)(3A)(AROM? OR ?ARYL?) OR POLYARYL(W)ETHER(W)KETON
                E
L42          22 SEA FILE=WPIX ABB=ON  L41(6A)(SPHER? OR PARTICLE?)
L43           7 SEA FILE=WPIX ABB=ON  L42 AND (FIBER? OR FIBRE?)
L44           1 SEA FILE=WPIX ABB=ON  L41 AND "MU.M"(3A)(10 OR 15 OR 20 OR 30
                OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80 OR
                85 OR 90 OR 95 OR 100)
L45         155 SEA FILE=WPIX ABB=ON  L41 AND MICRON?(3A)(10 OR 15 OR 20 OR 30
                OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80 OR
                85 OR 90 OR 95 OR 100)
L46           9 SEA FILE=WPIX ABB=ON  L42 AND L45
L47          54 SEA FILE=WPIX ABB=ON  L45 AND (FIBER? OR FIBRE?)
L48           5 SEA FILE=WPIX ABB=ON  L47 AND B29C?/IC
L49          22 SEA FILE=WPIX ABB=ON  L41 AND (SPHER? OR PARTICLE?)(4A)MICRON?(
                3A)(10 OR 15 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60
                OR 65 OR 70 OR 75 OR 80 OR 85 OR 90 OR 95 OR 100)
L50           6 SEA FILE=WPIX ABB=ON  L47 AND L49
L51          23 SEA FILE=WPIX ABB=ON  L43 OR L44 OR L46 OR L48 OR L50

=> D L51 FULL 1-23

L51  ANSWER 1 OF 23  WPIX COPYRIGHT 2007      THE THOMSON CORP on STN
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AN 2007-019096 [03] WPIX
TI Retaining bracket for e.g. powder painting of article, has threads with specific thickness associated to adherent material layer having fluorinated polymer and comprising gripping unit, where layer has specific thickness
DC A88; P42; P43; P78
IN RIEU B
PA (FIME-N) FIME; (FIME-N) FIME SAS
CYC 36
PI EP 1726368 A1 20061129 (200703)* FR 11[4]
FR 2886173 A1 20061201 (200703) FR
ADT EP 1726368 A1 EP 2006-290858 20060524; FR 2886173 A1 FR 2005-5202 20050524
PRAI FR 2005-5202 20050524
IPCI B05B0013-02 [I,A]; B05D0005-08 [I,A]; B08B0017-00 [I,A]; B08B0003-02 [I,A]; B08B0007-00 [I,A]; B44D0003-16 [I,A]
AB EP 1726368 A1 UPAB: 20070112

NOVELTY - The bracket (1) has many threads (8) for priming of stripping, where bracket is coated with an anti-adherent material layer (6) loaded by mineral particles (7). The threads are arranged along a post of the framework and along a transversal bar and have thickness between 0.5 and 2 mm. The threads have ends associated to the layer having fluorinated polymer and comprises gripping unit e.g. ring, where the layer has thickness between **20 and 60 microns.**

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a method for stripping a layer of painting deposited on a retaining bracket

(2) a stripping equipment for a retaining bracket

USE - Used in a stripping field, in an industrial scale, for retaining a part for treatment with painting e.g. powder painting, liquid painting of an article.

ADVANTAGE - The thickness of the anti-adherent layer is between **20** and **60 microns** so as to avoid the layer of the paint to be adhered to the bracket while only using less quantity of anti-adherent material, and hence limiting the cost of the bracket. The fluorinated polymers of anti-adherent material ensure anti-adherent properties for paintings which are by nature very adherent. The polymers are compatible with the electrostatic method that is used for the application of the painting and are mechanically resistant to resist the stripping method. The thickness of the threads is between 0.5 to 2 mm, thus avoiding the thread to be torn or stripped during the implementation of the painting and stripping operation. The gripping unit permits the operator to easily grip the thread and to pull below when the operator wishes to prime the stripping. The threads facilitate the priming of the stripping in a simple manner and reduce the time necessary for stripping in an efficient manner while consuming energy necessary for the operation.

DESCRIPTION OF DRAWINGS - The drawing shows a partially exploded schematic perspective view of a retaining bracket.

Retaining bracket (1)
Anti-adherent material layer (6)
Mineral particles (7)
Threads (8)
Painting layer (10)

TECH POLYMERS - The mineral **particles** are polyether ether ketone (**PEEK**).The anti-adherent material has a fluorinated polymer e.g. fluorinated ethylene propylene (FEP) and perfluoroalcoxy resin (PFA).
FS CPI; GMPI
MC CPI: A04-E10; A05-H07; A05-J10; A08-R08B; A12-H

L51 ANSWER 2 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-778773 [79] WPIX
DNC C2006-241125 [79]
DNN N2006-601710 [79]
TI Cleaning system for electrostatic printing machine comprises abrading brush having outwardly extending **fibers** and abrasive particles attached to end or entire length of **fibers**
DC A89; G08; P84; S06
IN FACCI J S; LUNDY D A; MCCONVILLE P J; TURAN M J; WAGNER M P; WAYMAN W H
PA (XERO-C) XEROX CORP
CYC 1
PI US 20060222425 A1 20061005 (200679)* EN 22[18]
ADT US 20060222425 A1 US 2005-93108 20050329
PRAI US 2005-93108 20050329
IPCI G03G0021-00 [I,A]
AB US 20060222425 A1 UPAB: 20061208

NOVELTY - A cleaning system for cleaning an imaging surface moving in a process direction comprises an abrading brush (200) for uniformly abrading the imaging surface to remove laterally conductive deposits. The abrading brush includes a core defining a core length and having **fibers** extending outwardly. The **fibers** include abrasive particles attached to the end or the entire length of the **fibers.**

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electrostatic printing machine having a cleaning system.

USE - For cleaning an imaging surface of an electrostatic printing machine (claimed).

ADVANTAGE - Accelerated lateral charge migration (LCM) testing of the abrasive brush shows a greater than 10x life extension.

DESCRIPTION OF DRAWINGS - The figure shows a schematic elevational view of a cleaning station.

Brush (200)
Primary cleaner component (210)
Photoreceptor belt (410)

TECH CERAMICS AND GLASS - Preferred Materials: The abrasive particles are silicon carbide, aluminum oxide, cerium oxide, iron oxide, cubic boron nitride, garnet, silica, glass, or zirconia.

MECHANICAL ENGINEERING - Preferred Components: The abrading brush includes **fibers** without abrasive particles attached to the end of the **fibers.** A primary cleaner is positioned upstream in the process direction of the abrading brush for removing residue toner particles from the imaging surface. The abrading brush includes a region extending along the core having **fibers** including attached abrasive particles and a second region extending along the core having **fibers** without attached abrasive particles. The **fibers** are conductive **fibers.** A power supply biases the conductive **fibers.** It applies an alternating current (AC) bias sufficient to generate corona in the brush-photoreceptor nip at the ends of the conductive **fibers** . It applies an AC bias at a frequency of 100 Hz - 100 kHz and a voltage of 1-5 kV peak-peak. The cleaning device is in a housing separate from the abrading brush. The abrading brush is rotated 100-4000 rpm. Preferred Dimensions: The region is a spiral region having a width of 1-50 mm. The **fibers** are 1-30 deniers per **fiber** in diameter and 3-20 mm in length. The abrasive **particles** are 0.2-**15 microns** in size.

POLYMERS - Preferred Materials: The **fibers** are conductive or insulating synthetic **fibers** including styrene-acrylate, acrylic, nylon, polyethylene, polypropylene, polyester, polystyrene, rayon, polyethylethylketone (**PEEK**), polyvinylchloride, Teflon(RTM: PTFE), carbon **fiber**, or natural **fibers** including tampico, horsehair, palmetto, or palmyra.

FS CPI; GMPI; EPI

MC CPI: A12-L05C1; G06-G08E
EPI: S06-A10

L51 ANSWER 3 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2006-778772 [79] WPIX
DNC C2006-241124 [79]
DNN N2006-601709 [79]
TI Cleaning system for electrostatic printing machine comprises cleaning device for cleaning debris from imaging surface, alternating current bias component adjacent imaging surface and power supply for biasing component to generate corona
DC A89; G08; P84; S06
IN FACCI J S; LUNDY D A; MCCONVILLE P J; TURAN M J; WAGNER M P; WAYMAN W H
PA (XERO-C) XEROX CORP
CYC 1
PI US 20060222424 A1 20061005 (200679)* EN 22[18]
ADT US 20060222424 A1 US 2005-93110 20050329
PRAI US 2005-93110 20050329
IPCI G03G0021-00 [I,A]
AB US 20060222424 A1 UPAB: 20061208

NOVELTY - A cleaning system comprises a cleaning device for cleaning debris from the imaging surface; an alternating current (AC) bias component adjacent the imaging surface and positioned downstream in the process direction from the cleaning device; and a power supply for biasing the AC bias component to generate corona that contacts the imaging surface to degrade laterally conductive deposits on the imaging surface that lead to lateral charge migration (LCM).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an electrostatic printing machine having a cleaning system.

USE - For use in an electrostatic printing machine (claimed), preferably for removing semi-conductive contaminants, e.g. laterally conductive films, on a photoreceptor.

ADVANTAGE - The AC-biased abrasive brush meets the goal of 10x life extension in accelerated LCM tests.

DESCRIPTION OF DRAWINGS - The figure shows a schematic elevational view of a cleaning station.

Brush (200)
Primary cleaner component (210)
Photoreceptor belt (410)

TECH CERAMICS AND GLASS - Preferred Materials: The abrasive particles are silicon carbide, aluminum oxide, cerium oxide, iron oxide, cubic boron nitride, garnet, silica, glass, or zirconia.

MECHANICAL ENGINEERING - Preferred Components: The cleaning device includes an abrading brush (200) adjacent the cleaning device for uniformly abrading the imaging surface to remove laterally conductive deposits that lead to lateral charge migration. The abrading brush includes core defining a core length and having **fibers** extending outwardly and attached abrasive particles. It includes a region of conductive **fibers** without abrasive particles attached to the end of the **fibers.** The power supply applies an AC bias at a frequency of 100 Hz - 100 kHz and a voltage of 1-5 kV peak-peak. Preferred Dimensions: The **fibers** are 1-30 deniers per **fiber** in diameter and 3-20 mm in length. The abrasive **particles** are 0.2-**15 microns** in size.

POLYMERS - Preferred Materials: The **fibers** are conductive or insulating synthetic **fibers** including styrene-acrylate, acrylic, nylon, polyethylene, polypropylene, polyester, polystyrene, rayon, polyethylethylketone (**PEEK**), polyvinylchloride, Teflon(RTM: PTFE), carbon **fiber**, or natural **fibers** including tampico, horsehair, palmetto, or palmyra.

FS CPI; GMPI; EPI
MC CPI: A12-L05C1; G06-G08E
EPI: S06-A10

L51 ANSWER 4 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2006-465174 [48] WPIX
DNC C2006-146363 [48]
TI Polymer powder, useful in layerwise working procedure and for preparing molded articles, which are useful in: e.g. air and space industry, automobile and machine components and medical technology, comprises polyarylene ether ketone powder
DC A26; A84; A86; A95; P53; P73
IN GREBE M; KREIDLER P; MONSHEIMER S; RICHTER A
PA (DEGS-C) DEGUSSA AG
CYC 42

PI	DE 102004062761	A1	20060622	(200648)*	DE	15[0]	
	CA 2530762	A1	20060621	(200648)	EN		
	EP 1674497	A1	20060628	(200648)	DE		
	US 20060134419	A1	20060622	(200648)	EN		
	NO 2005006075	A	20060622	(200651)	NO		
	CN 1827689	A	20060906	(200680)	ZH		C08L071-00
	AU 2005246985	A1	20060706	(200707)	EN		
	JP 2007039631	A	20070215	(200715)	JA	18	

ADT DE 102004062761 A1 DE 2004-102004062761 20041221; EP 1674497 A1 EP 2005-110112 20051028; US 20060134419 A1 US 2005-293360 20051205; CA 2530762 A1 CA 2005-2530762 20051219; CN 1827689 A CN 2005-10129697 20051220; NO 2005006075 A NO 2005-6075 20051220; AU 2005246985 A1 AU 2005-246985 20051221; JP 2007039631 A JP 2005-366594 20051220
PRAI DE 2004-102004062761 20041221
IPCI B22F0003-10 [I,A]; B22F0003-10 [I,C]; B29C0067-00 [I,A]; B29C0067-02 [I,C]; B29C0067-04 [I,A]; B32B0015-02 [I,A]; B32B0015-02 [I,C]; C08G0065-00 [I,C]; C08G0065-00 [I,A]; C08G0065-00 [I,C]; C08G0065-32 [I,A]; C08G0065-40 [I,A]; C08G0008-00 [I,C]; C08G0008-02 [I,A]; C08J0003-12 [I,A]; C08J0003-12 [I,C]; C08J0003-12 [I,A]; C08J0003-28 [I,A]; C08J0005-00 [I,A]; C08J0005-00 [I,C]; C08J0005-00 [I,A]; C08J0005-12 [I,A]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08K0005-00 [I,C]; C08K0005-3492 [I,A]; C08K0007-00 [I,C]; C08K0007-06 [I,A]; C08L0071-00 [I,C]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; C08L0071-10 [I,A]; C08L0071-12 [I,A]; B29C0067-00 [I,C]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08L0071-12 [I,A]
AB DE 102004062761 A1 UPAB: 20060727

NOVELTY - Polymer powder (I), useful in layerwise working procedure, where selective ranges of the respective powder layer is melted by electromagnetic energy, comprises polyarylene ether ketone (PAEK) powder and has a BET surface of 1-60 m2/g.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the preparation of (I); #a method for preparing molded articles, by a layerwise working procedure, comprising melting the selective ranges of the respective polymer powder layer by adding electromagnetic energy; #molded articles, prepared by the method, comprising a polymer of polyarylene ether ketone.

USE - (I) is useful in layerwise working procedure. (I) is useful for preparing molded articles, which are useful in: air and space industry, automobile and machine components, medical technology, sport and electronic industries, household ware industry or lifestyle (all claimed).

ADVANTAGE - (I) is prepared by a simple preparative method. The molded articles prepared using (I) have improved thermostability and mechanical characteristics.

TECH POLYMERS - Preparation (Claimed): Preparation of (I) comprises mixing at least one polymer powder with an absorber. Preferred Components: The BET

surface of (I) is 5-45 (preferably 15-40) m2/g. (I) comprises at least one polymer: polyether ether ketone, polyether ketone, polyether ketone ketone or polyetherether ketone ketone. The average grain diameter of (I) is 30-150 (preferably 48-**100**) **microns.** The solution viscosity of (I) in 96% sulfuric acid according to EN ISO 1628-1 and/or DIN EN ISO 307 is 0.2-1.3 (preferably 0.5-1.1). In (I), at least one component, prepared using (I), exhibits a solution viscosity in 96% sulfuric acid according to EN ISO 1628-1 and/or DIN EN ISO 307, which is higher or equal than the solution viscosity of the used powders. (I) additionally consists of at least one additive, filler, pigment and/or absorber. The additive is trickling agent and the absorber comprises colorants, dyes and pigments. The absorber has soot, copper hydroxide phosphate, charcoal, graphite, carbon **fibers**, chalk or interference pigments as further components. The absorber comprises flame protection agent based on phosphorus or melamine cyanurate. The powdery absorber component of (I) has an average particle size of 0.001-**50 microns.** (I) comprises 0.01-30 (preferably 0.4-10) wt.% of the absorber related to the sum of the polymers present in (I). (I) comprises a mixture of soot particles (which are hydrophilized or hydrophobicized) and polymer particles. (I) comprises glass particle and/or aluminum gravel as fillers. The polymer in the molded article is at least one polymer: polyetherether ketone, polyether ketone, polyether ketone ketone or polyetherether ketone ketone. The molded articles comprise 0.01-30 wt.% of absorber, related to the sum of the present polymers, dye, colorants and pigments. The molded articles comprise soot, copper hydroxide phosphate, charcoal, graphite, carbon **fibers**, chalk, interference pigments and flame protection agent based on phosphorus or melamine cyanurate; fillers and/or additives. Preferred Process: In the preparation of molded articles, the selectivity is reached by inhibitors, susceptors, absorbers or masks. The molded articles are prepared by selective laser-internals of (I) and for preparing the molded articles, infrared heating or microwave generator is used to melt (I).

ABEX EXAMPLE - Polyetheretherketone (PEEK) particles having BET-surface of 50 m2/g and an average grain diameter of 500 microns was grounded with help of cryogen working pinned disc mill. The PEEK particles were provided into a grinding room and cooled with liquid nitrogen at -50degreesC. In the grinding room, the PEEK-particles were grounded by rotating pin disc mill at 220 m/s to obtain micronized product with a portion of particles (30 wt.%) less than 100 microns. The micronized PEEK-particle was fractioned with cyclone with the help of alpine air jet filter to obtain polyarylene ether ketone with particle diameter (d10) of 16.7 microns, d50 of 52.6 microns and d90 of 113.8 microns.

FS CPI; GMPI

MC CPI: A05-J10; A11-A02A; A11-A04; A11-B01; A12-S09A

L51 ANSWER 5 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-447226 [46] WPIX

DNC C2006-140376 [46]

TI Preparation of polyarylene ether ketone-powders, useful for coating or preparing composites or shaped parts, comprises grinding a porous polyarylene ether ketone

DC A26; A82; G02

IN BIERHAUS C; CHRISTOPH W; KREIDLER P; RENNERS H; RICHTER A; TEMME H; BILLHAUS C; CHRISTOPHER W; KREDLER P; RUNAS H; TENM H

PA (DEGS-C) DEGUSSA AG

CYC 111

PI DE 102004062762 A1 20060622 (200646)* DE 6[0]
WO 2006067017 A1 20060629 (200646) DE
CN 1800242 A 20060712 (200674) ZH C08J003-12

ADT DE 102004062762 A1 DE 2004-102004062762 20041221; WO 2006067017 A1 WO

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     2005-EP56153 20051122; CN 1800242 A CN 2005-10136902 20051220
PRAI DE 2004-102004062762 20041221
IPCI C08G0065-00 [I,C]; C08G0065-40 [I,A]; C08J0003-12 [I,A]; C08J0003-12
     [I,A]; C08J0005-04 [I,C]; C08J0005-06 [I,A]; C08J0005-12 [I,A];
     C08L0071-00 [I,C]; C08L0071-00 [I,C]; C08L0071-10 [I,A]; C08L0071-12
     [I,A]; C09D0171-00 [I,C]; C09D0171-10 [I,A]; C09D0005-00 [I,A];
     C09D0005-46 [I,A]
AB   DE 102004062762 A1   UPAB: 20060719
      NOVELTY - Preparation of polyarylene ether ketone-powders (I) comprises
     grinding a porous polyarylene ether ketone with a BET-surface of greater
     than 1 m2/g.
            DETAILED DESCRIPTION - Polyarylene ether ketone powder prepared by
     the above method.
            USE - (I) is useful for coating or preparing composites or shaped
     parts (claimed).
            ADVANTAGE - (I) is obtained in high yield by the method and the
     method is simple.
TECH POLYMERS - Preferred Process: The process of grinding is carried out at
     below 0degreesC. The grounded product is subjected to sizing or sieving.
     The obtained polyarylene ether ketone powder has an average particle
     diameter of 1-300 microns and a viscosity coefficient of 20-150 cm3/g. The
     polyarylene ether ketone is a polyetheretherketone (PEEK),
     polyether ketone (PEK), polyether ketone ketone (PEKK) or polyether ether
     ketone ketone (PEEKK). (I) contains added inorganic pigments or processing
     additives.
ABEX  EXAMPLE - Polyetheretherketone (PEEK) particles having BET-surface of 50
     m2/g and an average grain diameter of 500 microns was grounded with help
     of cryogen working pinned disc mill. The PEEK particles were provided into
     a grinding room and cooled with liquid nitrogen at -50degreesC. In the
     grinding room, the PEEK-particles were grounded by rotating pin disc mill
     at 220 m/s to obtain micronized product with a portion of particles (30
     wt.%) less than 100 microns. The micronized PEEK-particle was fractioned
     with cyclone with the help of alpine air jet filter to obtain polyarylene
     ether ketone with particle diameter (d10) of 16.7 microns, d50 of 52.6
     microns and d90 of 113.8 microns.
FS   CPI
MC   CPI: A11-A04; A12-B01V; G02-A05

L51  ANSWER 6 OF 23  WPIX COPYRIGHT 2007       THE THOMSON CORP on STN
AN   2006-001048 [01]   WPIX
DNC  C2006-000480 [01]
DNN  N2006-001038 [01]
TI   Fiber composite roll cover for machines processing flat
     materials comprises a compound whose composition varies in different areas
DC   A32; A88; F09; Q62
PA   (VOIJ-C) VOITH PAPER PATENT GMBH
CYC  36
PI   DE 102004025116 A1 20051208 (200601)* DE  12[3]       D21G001-02
     EP 1612329      A1 20060104 (200603)  DE
ADT  DE 102004025116 A1 DE 2004-102004025116 20040521; EP 1612329 A1 EP
     2005-103508 20050428
PRAI DE 2004-102004025116 20040521
IC   ICM D21G001-02
     ICS B29C045-14; B29C070-30; F16C013-00
IPCI D21F0003-02 [I,C]; D21F0003-08 [I,A]; D21G0001-00 [I,C]; D21G0001-02 [I,A]
AB   DE 102004025116 A1   UPAB: 20060125
      NOVELTY - The cover(8) material is based on fibers(5) in a
     matrix(6) and the compound composition continuously varies depending on
     the area of the roll surface(14) to which the compound is applied.
            DETAILED DESCRIPTION - Fillers(9) of different types may also be
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included in the composition and the latter and/or the **fiber**(5) content and/or matrix(6) type and/or filler may continuously vary. Composition may vary in the axial and/or radial(7) direction of the roll body(4) onto which the compound is applied. **Fiber** type, content and/or diameter and/or length distribution and/or orientation may be varied. At least one **fiber** type may comprise loose **fibers** of specific length distribution and/or contains **fibers** which are randomly embedded in the matrix. **Fibers** have a length distribution of 1-10mm, preferably 1-3mm and/or more preferably 3-10mm. The matrix can comprise one or more different resin types. Matrix composition can be altered by varying the mixing ratio of at least one resin and/or hardener. Fillers can be used to influence wear resistance and/or viscosity and/or surface tension and/or conductivity. Filler particle size can also be varied. An INDEPENDENT CLAIM is included for a process for manufacturing the claimed roll cover. A compound comprising **fibers** and a matrix is applied onto specific positions on the roll and the composition of matrix and **fibers** is varied according to the axial and/or radial position on the roll.. The same step is repeated at different positions on the roll.

USE - For covering rolls used in the processing of flat strip materials.

ADVANTAGE - Roll cover loading can be increased and cover properties change continuously rather than in steps which reduces delamination risk.

DESCRIPTION OF DRAWINGS - The drawing shows a cross-section through a roll and cover.

fibers (5)
matrix (6)
radial direction (7)
cover (8)
filler (9)
roll surface (14)

TECH INORGANIC CHEMISTRY - Preferred Materials: Wear reducing fillers(9) can be carbides, metals and oxides or **fiber** pulp based on carbon and/or aramid and/or glass with particle size of 1-1000, preferably 5-**100 microns.** Surface tension influencing fillers can be thermoplastics or ionic fillers.

ORGANIC CHEMISTRY - Preferred Materials: Wear reducing fillers(9) can be carbides, metals and oxides or **fiber** pulp based on carbon and/or aramid and/or glass with particle size of 1-1000, preferably 5-**100 microns.** Surface tension influencing fillers can be thermoplastics or ionic fillers.

POLYMERS - Preferred Materials: Resins(6) can be either elastomers and/or thermosetting resins such as epoxide, cyanate ester or phenolic and/or a thermoplastic, e.g. polypropylene, polyethylene, polyphenylene sulphide, polyetheretherketone.

TEXTILES AND PAPER - Preferred Materials: **Fibers**(5) can be either inorganic, e.g. glass, metal, ceramic or boron or organic, e.g. carbon and/or aramid and/or polypropylene and/or polyester and/or high performance thermoplastics such as PPS(polyphenylene sulphide), **PEEK**(polyetheretherketone) or PTFE(polytetrafluoroethylene).

FS CPI; GMPI
MC CPI: A11-B09A; A12-H11; F04-E

L51 ANSWER 7 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-746981 [76] WPIX
CR 2005-648778
DNC C2005-227532 [76]
DNN N2005-616073 [76]
TI Manufacture of pre-impregnated product involves causing substrate moving

at linear speed to horizontally traverse first coating stage at which impregnation particles are caused to be deposited onto its first surface
DC A87; F06; P73
IN WERNER E
PA (PCCO-N) PC COMPOSITES LTD
CYC 107
PI WO 2005091715 A2 20051006 (200576)* EN 67[18] B32B000-00
ADT WO 2005091715 A2 WO 2005-IL337 20050324
PRAI US 2005-641907P 20050105
US 2004-809284 20040325
IC ICM B32B000-00
AB WO 2005091715 A2 UPAB: 20060125

NOVELTY - A pre-impregnated product is manufactured by causing a substrate (100) moving at a linear speed of greater than or equal to100 m/minute to horizontally traverse a first coating stage at which impregnation particles are caused to be deposited onto its first surface.

DETAILED DESCRIPTION - Manufacture of a pre-impregnated product involves causing a substrate moving at a linear speed of greater than or equal to100 m/minute to horizontally traverse a first coating stage at which impregnation particles are caused to be deposited onto its first surface; causing the substrate moving at a linear speed of greater than or equal to100 m/minute to horizontally traverse a first heated pressing stage (222) at which the impregnation particles are caused to be impregnated into the substrate from the first surface; causing the substrate moving at a linear speed of greater than or equal to100 m/minute to horizontally traverse a second coating stage at which impregnation particles are caused to be deposited onto a second surface; and causing the substrate moving at a linear speed of greater than or equal to100 m/minute to horizontally traverse a second heated pressing stage at which the impregnation particles are caused to be impregnated into the substrate from the second surface. INDEPENDENT CLAIMS are also included for:

(A) an apparatus for manufacture of a pre-impregnated product comprising a substrate driver causing a substrate to move horizontally at a linear speed; first coating assembly, traversed by the substrate at a linear speed, operative to deposit a first heated pressing assembly, traversed by the substrate at a linear speed, operative to impregnate the impregnation particles into the substrate from the first surface; second coating assembly, traversed by the substrate at a linear speeds second surface of the substrate; and second heated pressing assembly, traversed by said substrate at a linear speed of greater than or equal to100 m/minute, operative to impregnate the impregnation particles into the substrate from said second surface;

(B) a pre-impregnated material comprising textile substrate; and an impregnation particle layer adhered to the textile substrate, where impregnation particle layer has a uniformity of thickness having a variation of less than 5% of its average thickness; and

(C) a laminate formed of layers of pre-impregnated material.

USE - For manufacture of a pre-impregnated product.

ADVANTAGE - The invented method provides high degree of uniformity of thickness of the impregnation particle layers, thus voids in the laminate are avoided an highly uniform laminate are realized.

DESCRIPTION OF DRAWINGS - The figure is an illustration of a system.

Substrate (100)
Nozzles (114)
Vanes (116)
Conduits (132)
Pressing stage (222)

TECH CERAMICS AND GLASS - Preferred Material: The **fiber** is made from carbon **fiber**, glass **fiber** or metal **fiber.**

METALLURGY - Preferred Material: The metal foil comprises aluminum or copper foil.
POLYMERS - Preferred Component: The impregnation particles comprise particles from thermoplastic material, thermosetting material, an epoxy, phenolic material, polyimide, chalk, talc, a ceramic material, glass material, organic pigments or inorganic pigments. Preferred Material: The thermoplastic and/or thermosetting material comprises **particles** from polypropylene, polyamide, polyphenylene sulphide, **PEEK**, PEKK, polybutylene terephthalate, PEI and PAI (sic).
TEXTILES AND PAPER - Preferred Material: The substrate is made from paper, cardboard, rubber, metal foil, woven material, nonwoven material, perforated material, non-perforated material, natural material, an organic material, tow formed of **fibers** or yarn formed of **fibers**
.

FS CPI; GMPI
MC CPI: A11-B05E; A12-B01; A12-G00G; A12-S08; F01-H06; F03-D; F03-E01; F05-A06B

L51 ANSWER 8 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-732398 [75] WPIX
DNC C2005-223304 [75]
DNN N2005-602877 [75]
TI Powder for the production of spatial structure, i.e. molded body, contains **spherical particles** of **aromatic polyether ketone** plastic

application

DC A26; A81; M22; P53
IN HESSE P; PAUL T; WEISS R
PA (EOSE-N) EOS GMBH ELECTRO OPTICAL SYSTEMS; (TOYT-C) TOYOTA MOTORSPORT GMBH
CYC 107

PI	US 20050207931	A1 20050922	(200575)*	EN	13[8]	B22F003-10
	WO 2005090448	A1 20050929	(200575)	DE		C08J003-12
	WO 2005090449	A1 20050929	(200575)	DE		C08J003-12
	EP 1660566	A1 20060531	(200636)	DE		C08J003-12
	DE 202005020596	U1 20060608	(200638)	DE		

ADT US 20050207931 A1 Cont of WO 2004-EP2965 20040322; US 20050207931 A1 US 2004-816171 20040402; WO 2005090448 A1 WO 2004-EP2965 20040321; EP 1660566 A1 EP 2005-728203 20050321; WO 2005090449 A1 WO 2005-EP2991 20050321; EP 1660566 A1 WO 2005-EP2991 20050321; DE 202005020596 U1 DE 2005-202005020596 20050321; DE 202005020596 U1 Application No WO 2005-EP2991 20050321
FDT EP 1660566 A1 Based on WO 2005090449 A
PRAI US 2004-816171 20040402
WO 2004-EP2965 20040322
WO 2004-EP2965 20040321
IPCI B22F0003-00 [I,A]; B29C0067-00 [I,A]; C08G0065-40 [I,A]; C08G0067-00 [I,A]; C08J0003-12 [I,A]; C08L0077-00 [I,A]
IPCR B22F0003-10 [I,A]; B22F0003-10 [I,C]; C08G0065-00 [I,C]; C08G0065-40 [I,A]; C08G0067-00 [I,A]; C08G0067-00 [I,C]
AB US 20050207931 A1 UPAB: 20060125

NOVELTY - A powder comprises **spherical particles** of an **aromatic polyether ketone** plastic.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(1) a method for the production of a powder, comprising mixing a matrix micropowder (322) into a liquid phase to form a suspension where the particle size of the matrix micropowder is less than the particle size of the powder, spraying the suspension through a nozzle to form droplets comprising the matrix micropowder, and vaporizing or evaporating a liquid component from the droplets to form the powder in the form of spherical agglomerates (330);

(2) a method for producing a spatial structure comprising melting

the powder; and
(3) a molded body obtained by powder-based generative rapid prototyping of the powder.
USE - For the production of spatial structure, i.e. molded body (claimed).
ADVANTAGE - The inventive powder can produce molded bodies having improved mechanical properties.
DESCRIPTION OF DRAWINGS - The figure is a schematic representation of a method for the production of the powder.
Matrix micropowder (322)
Liquid phase (326)
Spherical agglomerates (330)
Droplets (332)
Stiffening and reinforcing **fibers** (340)

TECH CERAMICS AND GLASS - Preferred Component: At least one of the stiffening **fibers** or reinforcing **fibers** comprises at least one of glass **fibers.** The **fibers** are ceramic **fibers.**
INORGANIC CHEMISTRY - Preferred Material: The matrix material comprises a metallic material. Preferred Component: At least one of the stiffening **fibers** or reinforcing **fibers** comprises at least one of carbon **fibers.** The **fibers** are boron **fibers.**
ORGANIC CHEMISTRY - Preferred Material: The matrix material comprises a metallic material. Preferred Component: At least one of the stiffening **fibers** or reinforcing **fibers** comprises at least one of carbon **fibers.** The **fibers** are boron **fibers.**
POLYMERS - Preferred Component: The **aromatic polyether ketone** plastic is **polyaryl ether ketone** plastic comprising polymerized units of oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene of formula (I). The powder further comprises stiffening **fiber**(s) or reinforcing **fiber**(s), and a matrix material in the form of spherical powder particles. The matrix material comprises a thermoplastic material and a crosslinked polyamide. The crosslinked polyamide is PA11 or PA12. Preferred Composition: The total amount of the stiffening and reinforcing **fibers** (340) is up to 25, preferably up to 10 vol.%. Preferred Property: The particles are spherical. Preferred Dimension: The spherical particles have an average grain sized d50 of 20-150, preferably **40 -70 microns**, or **10-100**, preferably **10-80 microns.** Preferred Method: The melting includes powder-based generative rapid prototyping, selective laser sintering or laser melting.

FS CPI; GMPI
MC CPI: A05-H07; A05-J10; A08-R08B; A11-A04; A12-S09; M22-H03G

L51 ANSWER 9 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-668251 [69] WPIX
DNC C2005-202771 [69]
TI Prepreg for aeronautical-navigation/space field, consists of sheet-like reinforced **fiber** material impregnated with thermoplastic resin, and has preset void fraction and variation of thickness
DC A17; A28; A95
IN IIZUKA Y
PA (TOHS-C) TOHO RAYON KK
CYC 1
PI JP 2005239843 A 20050908 (200569)* JA 10[1] C08J005-24
ADT JP 2005239843 A JP 2004-50519 20040225
PRAI JP 2004-50519 20040225
IPCR C08J0005-24 [I,A]; C08J0005-24 [I,C]
AB JP 2005239843 A UPAB: 20051223
NOVELTY - A prepreg consists of a sheet-like reinforced **fiber**

material impregnated with a thermoplastic resin. The prepreg has void fraction of 1% or less and variation of thickness of 5% or less.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the manufacture of the prepreg. A sheet-like reinforced **fiber** material is immersed in suspension of organic solvent chosen from alcohol, ketone and/or halocarbon, or mixed solvent of organic solvent and water dispersed with thermoplastic resin powder. The resin powder is adhered to reinforced **fiber** material and heated at 170-390degreesC, and resin powder is melted. The molten mixture is heat-pressurized in a heating-pressurization roller at a pressure of 3-10 Kg/cm and temperature of (Tg+15)-(Tg+100) (in degreesC), and resin is impregnated to the **fiber** material. Thus, the prepreg is manufactured.

USE - For aeronautical-navigation/space field.

ADVANTAGE - The prepreg has excellent uniformity, surface smoothness, heat resistance and mechanical characteristics.

DESCRIPTION OF DRAWINGS - The figure shows manufacture of the prepreg.

reinforcement **fiber** material (1)
suspension bath (2)
guide roller (3)
drying machine (4)
heating zone (5)

TECH POLYMERS - Preferred Resin: The prepreg contains thermoplastic resin (10-70 wt.%). The thermoplastic resin is crystalline or non-crystalline thermoplastic resin having glass transition temperature of 150degreesC or more. The thermoplastic resin is polypropylene, polysulfone, polyether sulfone, **polyether ketone**, polyether ether ketone, **aromatic** polyamide, aromatic polyester, aromatic polycarbonate, polyether imide, polyarylene oxide, thermoplastic polyimide and/or polyamido imide.

Preferred Property: The thermoplastic resin powder has average **particle** diameter of 5-**20 microns.** The thermoplastic resin powder contains particles (10 volume%) of particle size less than or equal to4 **microns**, **particles** (**50** volume%) of **particle** size 8-15 **microns** and **particles** (**90** volume%) of particle size less than or equal to20 microns, measured by laser diffraction scattering method.

Preferred Composition: The suspension contains thermoplastic resin (1-50 wt.%).

ABEX EXAMPLE - PIXA-M (RTM: polyimide resin powder with a 10% particle size of 8 microns, 50% particle size of 12 microns and 90% particle size of 17 microns and glass transition temperature of 235degreesC) was dispersed in acetone, and 7% suspension was prepared. Toho Tenax IM600 (RTM: carbon fiber with a single fiber diameter of 5.0 microns) was immersed in the suspension for 30-60 seconds. The adhesion amount of resin in the carbon fiber was 35 plus minus3 wt.%. The carbon fiber adhered with the resin was dried at 150degreesC for 1-5 minutes, and a prepreg was obtained. The obtained prepreg had void fraction of 0.7-0.9%, variation on thickness of 2.6% and excellent surface smoothness.

FS CPI
MC CPI: A11-B09C; A12-S08D3; A12-S08E; A12-T03

L51 ANSWER 10 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2004-784461 [77] WPIX
DNC C2004-274504 [77]
DNN N2004-618312 [77]
TI Fuel cell has intermediate layer containing proton-acid group-containing cross-linked polymer having aromatic unit, and catalyst particle, between solid electrolyte film and diffusion electrode

DC A26; A32; A85; L03; P42; X16
IN IKADO S; KUBO Y; KUROKI T; NAKAMURA S; OBATA T; OMI T; TAMAI S; YOSHITAKE T
PA (MITA-C) MITSUI CHEM INC; (NIDE-C) NEC CORP; (IKAD-I) IKADO S; (KUBO-I) KUBO Y; (KURO-I) KUROKI T; (NAKA-I) NAKAMURA S; (OBAT-I) OBATA T; (OMIT-I) OMI T; (TAMA-I) TAMAI S; (YOSH-I) YOSHITAKE T; (NIDE-C) NIPPON ELECTRIC CO
CYC 107

PI	WO 2004091027	A1 20041021	(200477)*	JA	44[2]	
	EP 1624513	A1 20060208	(200611)	EN		
	TW 2004027127	A 20041201	(200612)	ZH		H01M008-00
	JP 2005505193	X 20060706	(200645)	JA	26	
	KR 2005117583	A 20051214	(200652)	KO		
	US 20060251951	A1 20061109	(200674)	EN		
	CN 1799160	A 20060705	(200675)	ZH		
	TW 242306	B1 20051021	(200681)	ZH		H01M008-00

ADT WO 2004091027 A1 WO 2004-JP4125 20040324; CN 1799160 A CN 2004-80015238 20040324; EP 1624513 A1 EP 2004-723078 20040324; EP 1624513 A1 WO 2004-JP4125 20040324; JP 2005505193 X WO 2004-JP4125 20040324; KR 2005117583 A WO 2004-JP4125 20040324; US 20060251951 A1 WO 2004-JP4125 20040324; TW 2004027127 A TW 2004-109592 20040407; JP 2005505193 X JP 2005-505193 20040324; KR 2005117583 A KR 2005-719141 20051007; US 20060251951 A1 US 2006-552712 20060707; TW 242306 B1 TW 2004-109592 20040407
FDT EP 1624513 A1 Based on WO 2004091027 A; JP 2005505193 X Based on WO 2004091027 A; KR 2005117583 A Based on WO 2004091027 A
PRAI JP 2003-105626 20030409
IC ICM H01M008-00; H01M008-02
ICS H01M004-86; H01M008-10
IPCI B05D0005-12 [I,A]; H01M0004-86 [I,A]; H01M0004-88 [I,A]; H01M0004-94 [I,A]; H01M0008-02 [I,A]; H01M0008-10 [I,A]; H01M0004-86 [I,A]; H01M0008-02 [I,A]; H01M0008-10 [I,A]
IPCR H01M0004-86 [I,A]; H01M0004-86 [I,C]; H01M0008-10 [I,A]; H01M0008-10 [I,C]
AB WO 2004091027 A1 UPAB: 20050707

NOVELTY - A fuel cell has solid electrolyte film (114) containing resin (1), interposed between pair of diffusion electrodes. Electrode has catalyst layer (112) containing resin (2) having proton-acid group, and catalyst, at porous base material (104). Intermediate layer (161) is formed between electrode(s) and film, and contains resin (3) having proton-acid group-containing cross-linked polymer having aromatic unit, and catalyst particle.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for manufacture of fuel cell. Pair of diffusion electrode is formed on both surfaces of solid electrolyte film, and pressurized or heated. The diffusion electrode and solid electrolyte film are integrated, and coating liquid containing resin (3) and catalyst particle is applied on surface(s) of solid electrolyte film to obtain fuel cell.

USE - For power generation.

ADVANTAGE - The fuel cell has excellent capability, reliability, battery characteristics, proton conductivity between electrode and solid electrolyte film, and adhesion between electrodes.

DESCRIPTION OF DRAWINGS - The figure shows a structure of fuel cell.

Fuel electrode (102)
Porous base material (104)
Catalyst layer (112)
Solid polymer electrolyte film (114)
Intermediate layer (161)

TECH POLYMERS - Preferred Resin: The resin (3) is a cross-linkable resin and contains repeating unit of formulae (1) and (2).
Ar1 = bivalent group containing aromatic ring coupled with 1-20C linear or

branched alkyl, hydrogen of aromatic ring is optionally substituted with alkyl, halogenated hydrocarbon or halogen
X, Y = proton-acid group chosen from sulfonic acid group, carboxylic acid group, phosphoric acid group and sulfonimide group or their metallic salts
x, y = 0 or more
x+y = 1 or more
The resin (1) is formed by cross-linking proton-acid group-containing cross-linkable **aromatic polyether ketone** for
5 times by heat or irradiation of electromagnetic wave.
Preferred Layer: The intermediate layer further contains resin (2) containing sulfonic-acid group-containing perfluoro carbon polymer compound.
Preferred Composition: The content rate of resin (3) in the surface touching solid electrolyte film of intermediate layer is higher than that of surface touching diffusion electrode of intermediate layer. The coating liquid further contains resin (2).
INORGANIC CHEMISTRY - Preferred Particle: The catalyst particle consists of catalyst metal supported by electroconductive particle.

ABEX EXAMPLE - 5,5'-carbonoyl bis (2-fluorobenzene sulfonic-acid sodium) (in g) (4.22), 4,4'-difluoro benzophenone (2.18), 2,2-bis (3,5-dimethyl-4-hydroxyphenyl)propane (5.69) and potassium carbonate (3.46) were mixed and reacted at 160 degrees C for 14 hours. Dimethyl-sulfoxide (40 ml) and toluene (30 ml) were further added and stirred under nitrogen atmosphere. The mixture was heated at 130 degrees C for 2 hours, and generated water was removed. Toluene was distilled and viscous polymer solution was obtained. The solution was filtered, precipitated and dried at 160 degrees C for 4 hours to obtain polymer powder (10.39) with yield of 92%. Sulfonic acid sodium-containing aromatic polyether ketone powder (0.5) was dissolved in dimethyl sulfoxide (100 ml). A soluble polymer compound of formula (A) was obtained. Catalyst supported carbon particle and sulfonic-acid sodium-containing aromatic polyether ketone powder were dipped in sulfuric acid in the ratio of 1:2 and water was distilled. The resulting mixture was dried at 160 degrees C for 4 hours, and sulfonic acid group-containing aromatic polyether ketone solution obtained using mixed solvent of tetrahydrofuran and water, was mixed. An intermediate layer coating liquid was obtained, and contained 5-10 wt.% of polymer concentration. A solid electrolyte film was obtained using the sulfonic acid sodium-containing aromatic polyether ketone powder, and had thickness of 50 microns. An electrode having catalyst layer containing ketone powder and catalyst particle, and carbon paper as a porous base material, was manufactured. A fuel cell having intermediate layer between solid electrolyte film and electrode, was manufactured. The fuel cell had favorable electric current voltage characteristics. The reduction of output of fuel cell was 5% or less even when continuous operation was performed for 1000 hours.

FS CPI; GMPI; EPI
MC CPI: A05-J10; A08-D01; A11-B05; A12-E06; L03-E04A2; L03-E04B
EPI: X16-C01C; X16-E06A

L51 ANSWER 11 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2003-260501 [26] WPIX
DNC C2003-068593 [26]
DNN N2003-206488 [26]
TI Bearing molding material for motor vehicle, consists of **spherical** glass, **aromatic polyether ketone** and carbon **fiber**
DC A88; Q62
IN MAEDA Y
PA (NIOD-C) NOK CORP
CYC 1

PI JP 2002323044 A 20021108 (200326)* JA 4[0] F16C033-20
ADT JP 2002323044 A JP 2001-127496 20010425
PRAI JP 2001-127496 20010425
IPCR C08J0005-16 [I,A]; C08J0005-16 [I,C]; C08K0007-00 [I,C]; C08K0007-06 [I,A]; C08K0007-20 [I,A]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; F16C0033-04 [I,C]; F16C0033-20 [I,A]
AB JP 2002323044 A UPAB: 20050528
NOVELTY - A bearing molding material consists of 3-24 weight% of **spherical** glass, 52-94 weight% of **aromatic polyether ketones** and 3-24 weight% of carbon **fiber**
.
USE - For motor vehicle.
ADVANTAGE - The bearing molding material has high limiting PV value and low coefficient of friction.
TECH POLYMERS - Preferred Composition: Alternately, the bearing molding material consists of 3-24 weight% of **spherical** glass, 28-91 wt.% of **aromatic polyether ketone**, 3-24 wt.% of carbon **fiber** and 3-24 wt.% of fluorocarbon polymer.
ABEX EXAMPLE - (In weight%) PEEK 150P (polyether ether ketone) (60), HTA-C6-UH (carbon fiber) (10), UB-47L (spherical glass) (20) and KTL 500F (polytetrafluoroethylene) (10) were mixed and extruded to form a pellet. The pellet was then molded to a resin board of thickness 2 mm. The resin board had threshold PV value of 2.3 MPa.m/second and coefficient of friction of 0.08 GPa.
FS CPI; GMPI
MC CPI: A05-J10; A12-H03; A12-S08C; A12-S08D3; A12-T04

L51 ANSWER 12 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2000-425433 [37] WPIX
DNC C2000-129080 [37]
DNN N2000-317341 [37]
TI Composite bearing with resin layer incorporating PTFE dispersed as **particles** in polyether ether ketone (**PEEK**), PTFE **particles** having a molecular weight of 300,000 - 500,000
DC A14; A88; P73; Q62
IN KATO E; SAWANO K; SHIBAYAMA T
PA (DAME-C) DAIDO METAL CO LTD; (DAME-C) DAIDO METAL KOGYO KK
CYC 3

PI	GB 2344624	A	20000614	(200037)*	EN	23[9]	F16C033-24
	JP 2000169697	A	20000620	(200040)	JA	6	C08L071-00
	GB 2344624	B	20001115	(200060)	EN		F16C033-24
	US 6332716	B1	20011225	(200206)	EN		C08L101-00

ADT GB 2344624 A GB 1999-28550 19991202; JP 2000169697 A JP 1998-348496 19981208; GB 2344624 B GB 1999-28550 19991202; US 6332716 B1 US 1999-453059 19991202
PRAI JP 1998-348496 19981208
IPCR B32B0027-00 [I,A]; B32B0027-00 [I,C]; B32B0027-30 [I,A]; B32B0027-30 [I,C]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; F16C0033-04 [I,C]; F16C0033-20 [I,A]
AB GB 2344624 A UPAB: 20050411
NOVELTY - Polytetrafluoroethylene (PTFE) is dispersed in the form of particles in a base resin consisting essentially of polyether ether ketone (PEEK), with the proportion of PTFE in the resin layer from 0.1 to 50% by weight, and the PTFE particles having a molecular weight of 300,000 to 500,000. The resulting resin layer is bonded to a backing metal to form a composite bearing; the peel strength of the resin layer and the bonding force between the backing metal and the resin layer is greater than similar resins with PTFE particles of lower weight.
USE - As a bearing for a generator, or pump, which is subjected to repeated stopping and starting. Also in bearings which require measurement

of counter electrolytic corrosion, where insulation is required to prevent electrolytic corrosion and where carbon **fibers** are added to conventional resin.
ADVANTAGE - Has good wear resistance, small coefficient of friction during starting, and excellent peeling strength of the resin layer and bonding force between the backing metal and the resin.
FS CPI; GMPI
MC CPI: A04-E08B; A05-J10; A07-A04F; A12-H03

L51 ANSWER 13 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1999-442894 [37] WPIX
DNC C1999-130438 [37]
DNN N1999-330210 [37]
TI Ceramic-filled fluoropolymer composites used as an electrical substrate material, especially for microwave circuit boards
DC A14; A28; A60; A85; L02; L03; P73; V04
IN ALLEN D A; HORN A F; TRASKOS R R
PA (ROGR-C) ROGERS CORP
CYC 1
PI US 5922453 A 19990713 (199937)* EN 9[2] B32B027-04
ADT US 5922453 A US 1997-795857 19970206
PRAI US 1997-795857 19970206
IPCR C08K0003-00 [I,C]; C08K0003-22 [I,A]; C08L0027-00 [I,C]; C08L0027-18 [I,A]; C08L0071-00 [I,A]; C08L0071-00 [I,C]; H05K0001-02 [N,A]; H05K0001-02 [N,C]; H05K0001-03 [I,A]; H05K0001-03 [I,C]; H05K0001-16 [N,A]; H05K0001-16 [N,C]
AB US 5922453 A UPAB: 20060115
NOVELTY - An electrical substrate composite material comprises (a) a fluoropolymer matrix; (b) at least one particulate ceramic filler (greater than 30 volume%); and (c) a high temperature, high modulus, polymeric powder of median **particle** size 200 **micron** or less (2-30 volume%), and the composite has a flexural modulus of greater than 200,000 psi.
USE - Especially as the dielectric substrate of a microwave circuit board, optionally clad with a metal layer on one or both sides.
ADVANTAGE - The substrate material shows a high flexural modulus and good dimensional stability. Replacing the matrix polymer with the high temperature polymeric material increases the modulus by nearly an order of magnitude with only a minor increase in dielectric loss and no adverse effects on the other advantageous properties of the ceramic-filled fluoropolymer composites.
TECH POLYMERS - Preferred Composite: The composite has a tan delta value of less than 0.005. It comprises 5-40 vol.% of the matrix polymer, 40-65 vol.% of the filler and 5-30 vol.% of the high temperature polymeric powder (preferably 5-20 vol% of poly(ether ether ketone) (**PEEK**), a liquid crystalline polymer or polyetherimide). The composite may further comprise at least one metal layer on at least a part of its surface. The material shows a dimensional change on etch and bake of less than 1.5 mil/inch and has a dielectric constant of 3.0-20.0. A planar shape of the composite has a coefficient of thermal expansion in the X-Y plane of 11-20 ppm/degreesC. Preferred Components: The fluoropolymer is polytetrafluoroethylene, a copolymer of tetrafluoroethylene and a perfluoroalkyl vinyl ether, a copolymer of hexafluoropropylne and tetrafluoroethylene, poly(ethylene-co-chlorotrifluorothylene), poly(chlorotrifluoroethylene), poly(ethylene-co-tetrafluoroethylene) or a mixture. The high temperature polymer powder is a liquid crystalline polymer, polyetherimide, polyethersulfone, thermoplastic or thermoset polyimide, polyketone, **PEEK**, poly(phenylene sulfide), polysulfone or a mixture (preferably a liquid crystalline polymer and/or **PEEK**).

INORGANIC CHEMISTRY - Preferred Components: The filler may have a hydrophobic coating (preferably of silane, titanate or zirconate) and comprises titanium dioxide, calcium, barium or strontium titanate, silica, corundum, wollastonite, **fiberglass**, Ba2Ti9O20, glass spheres, quartz, boron or aluminium nitride, silicon carbide, beryllia, magnesia or a mixture. The filler may comprise a mixture of (i) at least one first ceramic material of dielectric constant greater than 30 (preferably titania or strontium, calcium or barium titanate) and (ii) at least one second ceramic material of dielectric constant less than 30 (preferably fused amorphous silica, micro-crystalline silica, glass beads, alumina, magnesium oxide or Ba2Ti9O20). Preferred is a mixture of titania and silica present at 50-60 vol.% in the composite. The filler shows a dielectric loss of less than 0.005 at frequencies greater than 500 MHz. The surface metal layer is of copper.

ABEX EXAMPLE - The components of mixtures were mixed and processed using a 50 vol.% total solids casting mixture as disclosed in US5,312,576. Cast sheets were post-baked before lamination at 550degreesF for 8 hours to remove the volatile components of the PTFE dispersion. The high-temperature polymer was XYDAR LCP (RTM: liquid crystalline polymer, processing temperature 735 degrees F, flexural modulus 2 x 106 psi), which was cooled to liquid nitrogen temperature and hammer milled to a median particle size of 100 micron. The filler was silica containing titania at 2 vol.% of the composite volume. Composites were prepared comprising 55.5 vol.% filler, 10.0, 20.0 or 30.0 vol.% of the above powder and the balance of PTFE. The composites had a flexural modulus (psi) of 172.9, 214.3 and 438.3 x 103 respectively. Water absorption (%) was 0.12, 0.09 and 0.19 respectively, the dimensional stability (mil/inch) was -0.7, -0.2 and -0.5 respectively. K by the long stripline resonance method at 10 GHz was 3.06, 3.01 and 3.04 respectively and tan delta, by the same method, was 0.0011, 0.0012 and 0.0013 respectively. The sample with the highest loading of the above power showed an increase in tan delta of only 0.003 over the value for a control of RO3003 (RTM: 45.5 vol.% PTFE, 55.5 vol.% silica/titania filler).

FS CPI; GMPI; EPI

MC CPI: A04-E10; A08-R; A12-E07; L02-J02B; L03-H04E1; L03-H04E5
EPI: V04-R07L

L51 ANSWER 14 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1996-260779 [27] WPIX

DNC C1996-082651 [27]

TI Modified **PEEK** membranes for e.g. ultrafiltration or micro-filtration - prepared from solution of **PEEK** and polyethylene terephthalate in sulphuric acid and methane sulphonic acid, with improved water flow rates, pressure stability and retention

DC A26; A88; J01

IN GROEBE A; HOPPERDIETZEL S; MUELLER M; POERSCH F; WEINBERG E

PA (REHA-C) REHAU & CO AG

CYC 7

PI DE 19511361 C1 19960605 (199627)* DE 9[1] B01D071-52
EP 737506 A1 19961016 (199646) DE 9[0] B01D071-52

ADT DE 19511361 C1 DE 1995-19511361 19950328; EP 737506 A1 EP 1996-101863 19960209

PRAI DE 1995-19511361 19950328

IPCR B01D0071-00 [I,C]; B01D0071-52 [I,A]

AB DE 19511361 C1 UPAB: 20060110
Preparation of polymer membranes based on poly(oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene) polyetherether ketone (**PEEK**) cpds. of formula -(O-p-C6H4-O-p-C6H4-CO-p-C6H4-)n (I), comprises converting a homogeneous solution (L) comprising 5-20 weight% **PEEK** and 0.01-15 weight% polyethylene terephthalate (PET) in a mixture of 2-40%

sulphuric acid and 98-60% methane sulphonic acid, into membranes by standard techniques.
The polymer membranes prepared by this method are also claimed.
USE - The membranes are useful for ultra- or microfiltration (claimed).
ADVANTAGE - The PET modifies the morphological submicroscopic structure of the **PEEK** from fibrillar to globular units, increasing the water flow rate, pressure stability and retention of the membrane.

ABDT DE19511361
Preparation of polymer membranes based on poly(oxy-1,4-phenylene-oxy-1,4-phenylene-carbonyl-1,4-phenylene) polyetherether ketone (**PEEK**) cpds. of formula
-(O-p-C6H4-O-p-C6H4-CO-p-C6H4-)n (I),
comprises converting a homogeneous solution (L) comprising 5-20 weight% **PEEK** and 0.01-15 weight% polyethylene terephthalate (PET) in a mixture of 2-40% sulphuric acid and 98-60% methane sulphonic acid, into membranes by standard techniques.
The polymer membranes prepared by this method are also claimed.
USE
The membranes are useful for ultra- or microfiltration (claimed).
ADVANTAGE
The PET modifies the morphological submicroscopic structure of the **PEEK** from fibrillar to globular units, increasing the water flow rate, pressure stability and retention of the membrane.
EXAMPLE
0.2g Trevira 140 (RTM: PET, 1.6 dtex) was dissolved in a mixture of 78g H2SO4 (98%) and 101.8g CH3SO3H (98%) at room temperature, then 20g **PEEK** 380P (**particle** size less than 1.4 mm) was added to give a clear, red-brown solution after stirring for ca. 4-5 hrs., and then the casting solution was centrifuged to remove air bubbles, applied to a PE/PP nonwoven as a **100**-150 **micron** thick layer and precipitated in water for ca. 30-60 mins. at room temperature (KB)
PREFERRED METHOD
The number average mol.weight of (I) and the PET are 24900-57100 and 14000-25000 respectively. L has a solids content not greater than 20 (10-15) weight% and contains strong acids as a solvent, pref. a mixture of CH3SO3H and H2SO4 or CF3SO3H, most pref. CH3SO3H and maximum 40 weight% H2SO4. The membrane is precipitated at 0-60 deg.C using water or a water/solvent mixture, pref. a water/organic solvent mixture comprising 5-50 weight% organic solvent, as a precipitation agent. The membranes are film, sleeve, capillary or hollow **fibre** membranes.

FS CPI
MC CPI: A05-E04E; A05-J10; A07-A03; A07-A03A; A12-W11A; J01-C03

L51 ANSWER 15 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1996-089081 [10] WPIX
TI PTC resistor containing composite resistor material - comprises polymer material and hard filler material which is oxidation resistant
DC A85; L03; V01
IN LOITZL R; RITZER L; STRUEMPLER R
PA (ALLM-C) ABB RES LTD
CYC 8

PI						
EP 696036	A1	19960207	(199610)*	DE	17[7]	H01C007-02
DE 4427161	A1	19960208	(199611)	DE	16[7]	H01C007-02
JP 08191003	A	19960723	(199639)	JA	9[0]	H01C007-02

ADT EP 696036 A1 EP 1995-810464 19950712; DE 4427161 A1 DE 1994-4427161 19940801; JP 08191003 A JP 1995-195478 19950731

PRAI DE 1994-4427161 19940801
IPCR H01B0001-20 [I,A]; H01B0001-20 [I,C]; H01C0007-02 [I,A]; H01C0007-02 [I,C]
AB EP 696036 A1 UPAB: 20060503
The PTC resistor of the type having contacts between which is a composite resistor obtd. by high temperature mixing or forming a polymer with an elec. conductive powdered filler, comprises:
(a) the polymer is a material whose Tg, melt or crosslinking temperature is such
that the PTC transition is initiated at above 140 deg.C.; and (b) the filler is a material harder and more oxidation resistant than C black or Ag. Pref. the polymer is: (a) a thermoset based on an amide- or dihydride-hardened epoxide with a Tg above 100 degC; (b) a thermoplast or copolymer of m.pt. above 140 deg.C; or (c) a thermoplastic elastomer of crosslink temperature above 140 deg.C. Especially the polymers are: polypropylene,
thermoplastic polyurethane, PET, PBT, polyethylene naphthalate, polyphenylene sulphide, syndiotactic polystyrene, **PEEK**, polyarylether ketone, polybenzimidazole, F-containing polymers and/or thermoplastic polyimides.
USE - Claimed as a structural unit of a resistor made by the high temperature forming as above, such as resistor having a specific cold resistance
below 25 m. ohm-c. and/or a high current carrying capability above 100 deg.C and/or a resistance increase between the cold conducting state and PTC transition initiation of at least 108, especially 1010.
ADVANTAGE - Resistors having a combination of a very low cold resistance and a high nominal current-carrying capability are obtd. by a simple process independently or the type of resistor.
ABDT EP696036
The PTC resister of the type having contacts between which is a composite resistor obtd. by high temperature mixing or forming a polymer with an elec. conductive powdered filler, comprises:
(a) the polymer is a material whose Tg, melt or crosslinking temperature is such
that the PTC transition is initiated at above 140°C.; and
(b) the filler is a material harder and more oxidation resistant than C black or Ag.
Use is claimed as a structural unit of a resistor made by the high temperature forming as above, such as resistor having a specific cold resistance below 25 m. ohm-c. and/or a high current carrying capability above 100°C and/or a resistance increase between the cold conducting state and PTC transition initiation of at least 108, especially 1010.
ADVANTAGE
Resistors having a combination of a very low cold resistance and a high nominal current-carrying capability are obtd. by a simple process independently or the type of resistor.
EXAMPLE
A suitable compsn. hardened at 140°C for 20 hrs. comprises 'Avaldite' (RTM: Aradite F hardened by H4905) and **60** volume% etched **60 .mu.m** Ni. (IL)
PREFERRED FEATURES
Prior to mixing of the filer it is stored and/or chemically etched under a vacuum or non-oxidising atmos..
The polymer is hardened or tempered in at least 2 temperature stages in the forming of the resistor.
The polymer is:
(a) a thermoset based on an amide- or dihydride-hardened epoxide with a Tg above 100°C;
(b) a thermoplast or copolymer of m.pt. above 140°C; or
(c) a thermoplastic elastomer of crosslink temperature above 140°C.

Especially pref. polymers are polypropylene, thermoplastic polyurethane, PET, PBT, polyethylene naphthalate, polyphenylene sulphide, syndiotactic polystyrene, **PEEK**, polyarylether ketone, polybenz imidazole, F-containing polymers and/or thermoplastic polyimides.
The filler (30 soluble%) has are dia. 10-500 (especially **60**-108) . **mu.m** or is of 2 fractions - one with particles below **10 .mu.m** and the other with **60**-200 . **mu.m** particles.
Filler materials are metal (especially Mo, Ni and/or W) borides, carbides, nitrides and/or silicides, used as solid, hollow or core/shell structures, with the shell of the above materials and the core of Ni, W, Ti, Zr, Mo, Co or Al, an alloy such as brass or a Ti or V oxide such as TiO, V2O3 or VO.

FS CPI; EPI
MC CPI: A08-R01; A12-E07C; L03-B01A2
EPI: V01-A02A5B

L51 ANSWER 16 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1995-032882 [05] WPIX
DNC C1995-014895 [05]
DNN N1995-026117 [05]
TI Polyether-ether-ketone composite film production - by applying a dispersion of the resin directly to roughened metal surface and baking
DC A26; A82; G02; P42
IN SUNADA K; TOBA T
PA (NIKK-N) NIKKEN TOSO KOGYO KK
CYC 1
PI JP 06316686 A 19941115 (199505)* JA 3[0] C09D127-12
ADT JP 06316686 A JP 1992-314349 19921030
PRAI JP 1992-314349 19921030
IPCR B05D0007-14 [I,A]; B05D0007-14 [I,C]; C09D0127-12 [I,A]; C09D0127-12 [I,C]; C09D0005-00 [I,A]; C09D0005-00 [I,C]; C09D0005-02 [I,A]; C09D0005-02 [I,C]
AB JP 06316686 A UPAB: 20050510
The coating film is formed by applying a (PFA)-polyether-ether-ketone (**PEEK**) resin dispersion directly to the surface of metal roughened by a known method and then baking it. The PFA-**PEEK** resin dispersion is prepared by mixing finely powdered polyether-ether-ketone resin into an aqueous dispersion of PFA resin in a PFA:**PEEK** ratio of 75:20 to 70:30 by weight.
ADVANTAGE - The composite coating film has high hardness and excellent resistance to heat and chemicals. It shows strong adhesion to the surface of metal without the need for priming and does not cause blistering even when boiled in hot water. - In an example, **PEEK** resin crushed to an average **particle** dia. of about 14 microns was mixed into aqueous dispersion of PFA resin (e.g. TC-03 (RTM) in a PFA: **PEEK** ratio of 70:30 by weight. The mixture was applied to the blasted surface of stainless steel sheet by spraying and was baked at 400 deg.C for 20 min. to form a coating film of thickness **40** to 76 **microns.**
FS CPI; GMPI
MC CPI: A04-E10C; A05-J10; A07-A04F; A07-B03; A08-R08B; A11-B05D; A12-B04C; A12-B04E; G02-A02B2; G02-A02D

L51 ANSWER 17 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1994-299500 [37] WPIX
DNC C1994-136421 [37]
DNN N1994-235805 [37]
TI Lightweight, folder air bag for motor car - comprises organic polymer film as inner surface material not completely integrated with synthetic

fibrous cloth surface material
DC A95; F07; Q17
IN HANAMORI I; KOMASAKA T; MAEKAWA M
PA (KURS-C) KURARAY CO LTD
CYC 1
PI JP 06227347 A 19940816 (199437)* JA 6[2] B60R021-16
ADT JP 06227347 A JP 1993-39256 19930204
PRAI JP 1993-39256 19930204
IPCR B29C0069-00 [I,A]; B29C0069-00 [I,C]; B29D0031-00 [I,A]; B29D0031-00 [I,C]; B29K0105-08 [N,A]; B29L0031-58 [N,A]; B60R0021-16 [I,A]; B60R0021-16 [I,C]
AB JP 06227347 A UPAB: 20060109
Airbag comprises a multi-structure comprising a synthetic **fibre** base cloth surface material and an organic polymer film inner surface material having a shape retention temperature of at least 250 deg. C and thickness of 5-**100 microns.** The inner surface material is not completely integrated with the surface material.
Pref. the organic polymer film comprises e.g, silicone rubber, chloroprene rubber, polyester, nylon 66, nylon-46, crosslinking polyethylene. The synthetic **fibre** comprises nylon, polyester, polyvinyl alcohol, **polyarylate**, aramid, or **polyether ketone.**
USE/ADVANTAGE - Airbag is used for a motor car. Since inner surface material is not completely integrated with the surface material, the foundation cloth has improved strength, high tensile strength and tearing strength. Use of the organic polymer film having heat resistance provides light weight, and flexibility while retaining high heat resistance and airtightness. The resulting airbag can be folded for compactness but can be smoothly and quickly expanded and developed in the event of an emergency.
FS CPI; GMPI
MC CPI: A09-A01A; A12-T04E; F04-E03A

L51 ANSWER 18 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1992-352348 [43] WPIX
DNC C1992-156247 [21]
DNN N1992-268417 [21]
TI Thermoplastic composite production preparation - by laminating and hot pressing
layer comprising reinforcing **fibre** and low mol. weight polyether ether ketone **fibre** and second layer comprising polyether ether
DC A32; A93; A95; P73
IN HATA S; IGUCHI M; SHIGETA H
PA (HOND-C) HONDA MOTOR CO LTD
CYC 1
PI JP 04249152 A 19920904 (199243)* JA 6[2] B32B027-12
ADT JP 04249152 A JP 1991-35654 19910204
PRAI JP 1991-35654 19910204
IPCR B29C0043-20 [I,A]; B29C0043-20 [I,C]; B29C0043-52 [I,A]; B29C0043-52 [I,C]; B29K0073-00 [N,A]; B32B0027-12 [I,A]; B32B0027-12 [I,C]; B32B0005-16 [I,A]; B32B0005-16 [I,C]; B32B0005-22 [I,C]; B32B0005-26 [I,A]
AB JP 04249152 A UPAB: 20060107
A composite thermoplastic prod. is prepared by laminating and hot pressing a first layer comprising reinforcing **fibre** and low mol.weight polyetherether ketone **fibre** and a second layer comprising high mol.weight polyetherether ketone.
The low mol.weight **PEEK fibre** has a weight average mol.weight = 6.5 x 10 power 4 to 8.3 x 10 power 4 and a dia. = 5-200 microns. The reinforcing **fibre** is, e.g., long carbon **fibre**, glass **fibre**, metal **fibre**, etc. The high mol.weight **PEEK** has a weight average mol.weight = 9.0 x 10 power 4 to 9.4 x 10 power 4 and is

used in the form of powder having an average particle size = up to 0.5mm, film having a thickness = 3-35 **microns**, woven or unwoven cloth. The hot press is carried out pref. at 340-400 deg.C and 6-20 kg/cm2. The toughness of composite prod. depends on the crystallinity so that the cooling of formed prod. is controlled.

USE/ADVANTAGE - The low mol.weight polyetherether ketone resin (**PEEK**) impregnates into the reinforcing **fibre** and the high mol.weight **PEEK** resin layer improves the toughness by controlling the cooling rate, thus the crystallinity. The composite prod. is used as a part for a motorcar, etc. and as structural part

FS CPI; GMPI
MC CPI: A05-H07; A05-J10; A08-R01; A08-R08; A11-B09C; A12-S08A; A12-S08C; A12-S08E

L51 ANSWER 19 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1992-226023 [27] WPIX
CR 1993-026881
DNC C1992-102160 [21]
TI In-situ formation of foamed composite sandwich or foam prods. - by moulding a mixture of polyether:ether:ketone, magnesium hydroxide as activator, sodium borohydride as blowing agent and glass spheres as reinforcer
DC A26; A32; A60; E33; E34
IN COLEMAN R E; MURRAY P J; SAATCHI H; SMITH K A
PA (SUNH-C) SUNDSTRAND CORP
CYC 1
PI US 5122316 A 19920616 (199227)* EN 6[0] B29C067-00
ADT US 5122316 A US 1989-419723 19891011
PRAI US 1989-419723 19891011
IPCR C08J0009-00 [I,C]; C08J0009-06 [I,A]
AB US 5122316 A UPAB: 20050504

In-situ. preparation of advanced foamed thermoplastic composites comprises (a) mixing (i) powdered Mg(OH)2; (ii) powdered NaBH4; (iii) powdered high-temperature thermoplastic; and (iv) reinforcers and/or fillers; (b) by placing the mixture in a mould adjacent to at least one skin; and (c) applying heat and pressure to the mould. The thermoplastic (iii) melts, gas is generated within the mixture by thermal decomposition of (i) and (ii), and the reaction of the decomposition prod. (iii) does not react with (ii) at a temperature below that of the m.pt. of (iii). Pref. (iii) is polyetheretherketone (**PEEK**) and (iv) is glass **spheres.** Also claimed is the use of (i) as activator for (ii) and also as a source of nucleating materials; and the use of (ii) as a blowing agent in the preparation of foamed prods. thermoplastic (iii) is free from materials which will react with (ii) at a temperature below that of the m.pt. of (iii).

USE/ADVANTAGE - Applications for the foamed composite sandwich or foam prods. include use in aircraft and space vehicles. Sound structures are formed in which cracks and voids may be avoided. Desired gas for foaming and internal pressure for consolidation are produced. No breakages of glass spheres or **fibres** occurs during mould

FS CPI
MC CPI: A05-H07; A05-J10; A08-B; A08-M; A08-R01; A08-S07; A11-B06C; A12-S04A1; A12-S08E; E31-Q02; E34-B02

L51 ANSWER 20 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1992-027471 [04] WPIX
DNC C1992-011846 [21]
TI Porous polyether-ether-ketone* film preparation for precision filtration - by irradiation with ion beam, then chemical etching

DC A25; A88; J01
IN KOMAKI M; KUMAKURA M; MATSUMOTO Y; SEGUCHI T; UENO K
PA (JAAT-C) JAPAN ATOMIC ENERGY RES INST; (SUME-C) SUMITOMO ELECTRIC IND CO
CYC 1
PI JP 03273038 A 19911204 (199204)* JA
ADT JP 03273038 A JP 1990-72878 19900322
PRAI JP 1990-72878 19900322
IPCR B01D0067-00 [I,A]; B01D0067-00 [I,C]; B01D0071-00 [I,C]; B01D0071-52 [I,A]; C08J0009-00 [I,C]; C08J0009-26 [I,A]
AB JP 03273038 A UPAB: 20050503
Porous polyether-ether-ketone(**PEEK**) film is prepared by irradiating a **PEEK** film with charged **particles** to form irradiation-induced damages and then chemically etching.
The film has cylindrical holes with an average hole diameter of less than **10 microns.**
The **PEEK** film is pref. irradiated with ionised radiations or UV rays and then chemically etched. The chemical etching is conducted by the use of an oxidising solution. The oxidising solution contains KMnO4, NaClO, H2SO4 and/or K2Cr2O7.
USE/ADVANTAGE - The porous film is used as a separating membrane for precision filtration and ultrafiltration. It has a uniform hole diameter so that the filtration of objects is easy. - A **PEEK** film with a thickness of 2 microns was irradiated with Ar+3 ions at an irradiation dose of 5 x 10 power 8 ions/cm2 and then dipped in a K2Cr2O7+H2SO4 solution(5 g+18 g) for 6 hrs. at 65 deg.C to give a porous **PEEK** film. The porous **PEEK** film has a hole diameter of 0.1 microns and a hole density of 5 x 10 power 8 holes/cm2. @(5pp Dwg.No.0/0)
FS CPI
MC CPI: A05-H07; A05-J10; A11-C04D; A11-C04E; A12-W11A; J01-C03

L51 ANSWER 21 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1991-241132 [33] WPIX
DNC C1991-104638 [21]
DNN N1991-183696 [21]
TI Extrusion moulded sheet and electrical insulation board - comprises a compsn. containing polyether ketone, **fibre** reinforcement and inorganic cpd(s). having good heat resistance
DC A26; A85; L03; X12
IN KAMIYA K; NAKAYAMA Y; OKUBO M; OKUMURA S; TANIMOTO K
PA (NIRA-C) UNITIKA LTD
CYC 1
PI JP 03151220 A 19910627 (199133)* JA
ADT JP 03151220 A JP 1989-290452 19891108
PRAI JP 1989-290452 19891108
IPCR B29C0047-00 [I,A]; B29C0047-00 [I,C]; B29K0105-06 [N,A]; B29K0071-00 [N,A]; C08K0007-00 [I,A]; C08K0007-00 [I,C]; C08K0007-02 [I,A]; C08L0071-00 [I,C]; C08L0071-08 [I,A]; C08L0071-10 [I,A]; H01B0003-30 [I,A]; H01B0003-30 [I,C]
AB JP 03151220 A UPAB: 20050502
Compsn. consists of 100 pts. weight of **aromatic polyether ketone**, 2-50 pts. weight of **fibre** reinforcement and 5-50 pts. weight of inorganic cpd. with **50 microns** or less of average dia.
Pref. **aromatic polyether ketone** is polyetheretherketone consisting of (a), polymer consisting of mainly (a) and smaller amts. of (b)-(d). Intrinsic viscosity is pref. 0.8 or more (at 25 deg.C in 96% H2SO4 solvent). **Fibre** reinforcement is pref. glass **fibre**, 0.1-10 mm long opt. surface treated with silane coupling agent such as vinyltriethoxysilane, chrome coupling agent such as methacrylate chromic chloride. Inorganics are pref. mica, talc,

wollastonite and the sheet increased its crystallinity by heat rolling in order to give the board.
ADVANTAGE - Sheet has heat resistance, small difference of mechanical strength between machine direction and transverse direction and surface smoothness. The soldering proof electrical insulation board is inexpensively prepared by heating the sheet. @(4pp Dwg.No.0/0)@

FS CPI; EPI
MC CPI: A05-H07; A05-J10; A08-R01; A11-B07A; A12-E01; A12-S08A; A12-S08D2; A12-S08E; L03-A; L03-J
EPI: X12-E02B

L51 ANSWER 22 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1990-301322 [40] WPIX
DNC C1990-130183 [21]
TI Lubricative resin-compsn. - comprises fluorinated resin and **aromatic polyether-ketone** polymer **particles**
DC A14; A25; A85; L03
IN ARAKI M; SATO E
PA (ASAH-C) ASAHI CHEM IND CO LTD
CYC 1
PI JP 02212539 A 19900823 (199040)* JA
ADT JP 02212539 A JP 1989-32722 19890214
PRAI JP 1989-32722 19890214
IPCR C08L0027-00 [I,C]; C08L0027-12 [I,A]; C08L0071-00 [I,C]; C08L0071-08 [I,A]; C08L0071-10 [I,A]; C08L0087-00 [I,A]; C08L0087-00 [I,C]
AB JP 02212539 A UPAB: 20050501
Lubricative resin-compsn. is composed of (A) 30-95 weight% of a fluorine-contained resin and (B) 5-70 weight% of **particles** of polymer of an **aromatic polyether-ketone.** The (A) fluorine-contained resin is pref. polytetrafluoroethylene e.g. Teflon 7AJmm(RTM) made by Mitsui Fluorochemical KK; of which average MW is pref. 10000-50000.
The (B) polymer of **aromatic polyether-ketone** : pref. one represented by formula: e.g. (I) which can be copolymer with the other recurring units than that of the ether-ketone in amount of less 40 mol.%; of which relative-viscosity: pref. 0.8 (microinh); of which particles are prepared by milling with conventional mill e.g. ball-mill or jet-mill etc. to give particle-size: pref. 5-50 **micron** ; shape of the particles: especially sphere.
USE/ADVANTAGE - Lubricative resin-compsn. used for parts of electric- or mechanical-apparatus can be produced, has improved sliding property partic. at high temperature-range and its durability for long period, resulting possibility for changing sliding-material e.g. shaft-bearing of metal to resin giving light-weight and low cost.
FS CPI
MC CPI: A04-E10; A05-H07; A05-J06; A08-R08; A12-W02; L03-J

L51 ANSWER 23 OF 23 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1985-046371 [08] WPIX
DNC C1985-020131 [21]
DNN N1985-034516 [21]
TI Underground hydrocarbon formations heating - using electrode support conduit made of resin impregnated glass cloth wound over metal conduit
DC A85; H01; P73; Q49; Q67
IN HAYASHI O; MATSUDA S; OKAHASHI K; OKAMOTO G; TAKAHASHI I
PA (MITQ-C) MITSUBISHI ELECTRIC CORP
CYC 3
PI JP 60003388 A 19850109 (198508)* JA 6[2]
CA 1224164 A 19870714 (198732) EN

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     JP 63016560      B  19880409 (198818)  JA
     US 4798769       A  19890117 (198906)  EN              B32B015-08
ADT  JP 60003388 A JP 1983-109649 19830617; JP 63016560 B JP 1983-109649
     19830617; US 4798769 A US 1987-14207 19870205
PRAI JP 1983-109649 19830617
IPCR B29C0063-00 [I,C]; B29C0063-24 [I,A]; B29K0023-00 [N,A]; B29K0009-00
     [N,A]; B32B0015-08 [I,A]; B32B0015-08 [I,C]; E21B0017-00 [I,A];
     E21B0017-00 [I,C]; E21B0036-00 [I,C]; E21B0036-04 [I,A]; E21B0043-16
     [I,C]; E21B0043-24 [I,A]; E21C0041-00 [I,C]; E21C0041-24 [I,A];
     F16L0025-00 [I,C]; F16L0025-01 [I,A]
AB   JP 60003388 A   UPAB: 20050423
     Support conduit, used for heating electrically underground hydrocarbon
     sources (e.g., bitumen contained in oil sand or tar sand, etc.), is
     produced if a polyether-etherketone resin film of a thickness of 0.01-0.40
     mm and a glass fibre cloth impregnated with a water-dispersed
     varnish of polyether-etherketone resin or polyphenylene sulphide resin are
     alternately wound on the surface of a metal conduit (e.g., stainless steel
     tube, etc.) having a length of 200-600 m into several layers, and then the
     metal conduit so treated is set in moulds and hot-pressed at 350-450 deg.
     C under a pressure of 10-200 kg/sq.cm.
            USE/ADVANTAGE - The support conduit has excellent hot water
     resistance, corrosion resistance and dielectric strength characteristics,
     as well as mechanical strength. It is used effectively for electrically
     heating underground hydrocarbon resources.
FS   CPI; GMPI
MC   CPI: A05-H07; A05-J05; A11-B09A; A12-E10; A12-S08D; A12-W10; H01-D08


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FILE LAST UPDATED: 13 Mar 2007  (20070313/ED)

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 substance identification.

=> D QUE L39
L3              5 SEA FILE=REGISTRY ABB=ON  (24937-16-4/BI OR 25035-04-5/BI OR
                  25038-74-8/BI OR 25587-80-8/BI OR 31694-16-3/BI)
L6         281582 SEA FILE=REGISTRY ABB=ON  POLYETHER/PCT
L7          19946 SEA FILE=REGISTRY ABB=ON  POLYKETONE/PCT
L8           9443 SEA FILE=REGISTRY ABB=ON  L6 AND L7
L9           2652 SEA FILE=REGISTRY ABB=ON  L8 NOT (N OR S)/ELS
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L10              1 SEA FILE=REGISTRY ABB=ON  L3 AND L9
L12           5363 SEA FILE=HCAPLUS ABB=ON  L10
L13           2489 SEA FILE=HCAPLUS ABB=ON  L12 AND (FIBER? OR FIBRE?)
L14              5 SEA FILE=HCAPLUS ABB=ON  L13 AND MICRON#
L16             22 SEA FILE=HCAPLUS ABB=ON  L13 AND (PARTICLE? OR SIZE?)(3A)(10
                   OR 15 OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR
                   70 OR 75 OR 80 OR 85 OR 90 OR 95 OR 100)
L18             58 SEA FILE=HCAPLUS ABB=ON  L13 AND "MU.M"(3A)(10 OR 15 OR 20 OR
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L19             13 SEA FILE=HCAPLUS ABB=ON  L16 AND L18
L20            119 SEA FILE=HCAPLUS ABB=ON  (L12 OR PEEK)(L)"MU.M"(3A)(10 OR 15
                   OR 20 OR 30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR
                   75 OR 80 OR 85 OR 90 OR 95 OR 100)
L21             26 SEA FILE=HCAPLUS ABB=ON  (L12 OR PEEK)(6A)"MU.M"(3A)(10 OR 15
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                   75 OR 80 OR 85 OR 90 OR 95 OR 100)
L22             36 SEA FILE=HCAPLUS ABB=ON  L20 AND (FIBER? OR FIBRE?)
L23              6 SEA FILE=HCAPLUS ABB=ON  L21 AND (FIBER? OR FIBRE?)
L24             48 SEA FILE=HCAPLUS ABB=ON  L14 OR L19 OR L22 OR L23
L27            303 SEA FILE=HCAPLUS ABB=ON  L12(L)PREP/RL
L29            826 SEA FILE=HCAPLUS ABB=ON  L12(L)POF/RL
L33            365 SEA FILE=HCAPLUS ABB=ON  (L27 OR L29)(L)(FIBER? OR FIBRE?)
L34              8 SEA FILE=HCAPLUS ABB=ON  L33(L)POWDER?
L35              6 SEA FILE=HCAPLUS ABB=ON  L33 AND "MU.M"(3A)(10 OR 15 OR 20 OR
                   30 OR 35 OR 40 OR 50 OR 55 OR 45 OR 60 OR 65 OR 70 OR 75 OR 80
                   OR 85 OR 90 OR 95 OR 100)
L36             12 SEA FILE=HCAPLUS ABB=ON  L33 AND SPHER?
L37             67 SEA FILE=HCAPLUS ABB=ON  L24 OR (L34 OR L35 OR L36)
L38             59 SEA FILE=HCAPLUS ABB=ON  L37 AND (PLASTIC? OR POLYMER?)/SC,SX
L39             56 SEA FILE=HCAPLUS ABB=ON  L38 AND (1840-2004)/PRY,AY,PY

=> D L39 BIB ABS IND HITSTR 1-56

L39  ANSWER 1 OF 56  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN   2005:1027880  HCAPLUS
DN   143:307288
TI   Aromatic polyether-polyketone powders for the production of
     fiber-reinforced molded structures                          applicant
IN   Hesse, Peter; Paul, Tillmann; Weiss, Richard
PA   Toyota Motorsport GmbH, Germany
SO   U.S. Pat. Appl. Publ., 13 pp., Cont. of Appl. No. PCT/EP04/002965.
     CODEN: USXXCO
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND    DATE        APPLICATION NO.        DATE
     ---------------     ----    --------    --------------------   --------
PI   US 2005207931        A1     20050922    US 2004-816171          20040402 <--
     WO 2005090448        A1     20050929    WO 2004-EP2965          20040322 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
             LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
             NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
             TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
        RW:  BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
             BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
             ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
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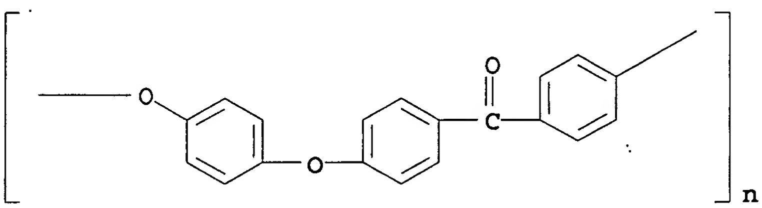
            SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
            TD, TG
     WO 2005090449          A1     20050929    WO 2005-EP2991          20050321 <--
         W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
            CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
            GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
            LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,
            NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
            SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
        RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
            AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
            EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
            RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
            MR, NE, SN, TD, TG
     EP 1660566             A1     20060531    EP 2005-728203          20050321 <--
         R: DE, IT
     DE 202005020596        U1     20060608    DE 2005-202005020596    20050321 <--
PRAI WO 2004-EP2965         A1     20040322   <--
     WO 2005-EP2991         W      20050321
AB   Spherical polymer powder, such as polyaryl ether ketone plastic
     powder, is mixed with stiffening and/or reinforcing fibers and melt-molded
     to form complex structures.
IC   ICM  B22F003-10
INCL 419010000
CC   38-2 (Plastics Fabrication and Uses)
ST   polyaryl ether ketone reinforcing fiber polymer composite
IT   Carbon fibers, uses
     Glass fibers, uses
     RL: MOA (Modifier or additive use); USES (Uses)
        (aromatic polyether-polyketone powders for the production of
fiber-reinforced
        molded structures)
IT   Synthetic fibers
     RL: MOA (Modifier or additive use); USES (Uses)
        (boron; aromatic polyether-polyketone powders for the production of
        fiber-reinforced molded structures)
IT   Polyamides, uses
     RL: MOA (Modifier or additive use); USES (Uses)
        (crosslinked; aromatic polyether-polyketone powders for the production of
        fiber-reinforced molded structures)
IT   Reinforced plastics
     RL: TEM (Technical or engineered material use); USES (Uses)
        (fiber-reinforced; aromatic polyether-polyketone powders for the production
of
        fiber-reinforced molded structures)
IT   Ceramics
        (fibers; aromatic polyether-polyketone powders for the production of
        fiber-reinforced molded structures)
IT   Polyketones
     RL: POF (Polymer in formulation); TEM (Technical or engineered material
     use); USES (Uses)
        (polyether-, aromatic; aromatic polyether-polyketone powders for the
production
        of fiber-reinforced molded structures)
IT   Polyethers, uses
     RL: POF (Polymer in formulation); TEM (Technical or engineered material
     use); USES (Uses)
        (polyketone-, aromatic; aromatic polyether-polyketone powders for the
production
        of fiber-reinforced molded structures)
```

IT 24937-16-4, PA12 25035-04-5, PA11 25038-74-8 25587-80-8
RL: MOA (Modifier or additive use); USES (Uses)
(aromatic polyether-polyketone powders for the production of fiber-reinforced
molded structures)
IT **31694-16-3**
RL: **POF (Polymer in formulation)**; TEM (Technical or engineered material use); USES (Uses)
(aromatic polyether-polyketone **powders** for the production of **fiber**-reinforced molded structures)
IT **31694-16-3**
RL: **POF (Polymer in formulation)**; TEM (Technical or engineered material use); USES (Uses)
(aromatic polyether-polyketone **powders** for the production of **fiber**-reinforced molded structures)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 2 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:57424 HCAPLUS
DN 142:136061
TI Rolling devices with long service life and suppressed outgas generation
IN Saito, Takeshi; Ito, Hiroyuki; Tomitsuka, Yasushi
PA NSK Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005016589	A	20050120	JP 2003-180004	20030624 <--
PRAI	JP 2003-180004		20030624 <--		

AB The devices consist of several rolling elements placed between stainless steel outer members and inner members, polyether ether ketone holding pieces placed between the rolling elements, and lubricant coatings with thickness 0.1-**10 .mu.m** on at least rolling
surfaces of the rolling elements, and optionally rolling paths of the outer members and inner members. Thus, a ball screw composed of a screw axis, a nut, balls, and a circulation tube, each coated with mixts. containing Fomblin Z DOAC (fluoropolymer) and Demnum S 200 (F-containing oil), and holding pieces containing Victrex **PEEK** 450CA30 (carbon **fiber**
-reinforced polyether ether ketone) showed suppressed dust formation.
IC ICM F16H025-24
ICS F16C029-06; F16C031-06; F16C033-44; F16C033-56; F16C033-66;
F16H025-22
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 55

ST rolling device stainless steel lubricant coating; polyether ether ketone
carbon **fiber** reinforced rolling; lubricant coating fluoropolymer
oil rolling bearing

IT Lubricating greases
(F-containing; rolling devices with long service life and suppressed outgas
generation)

IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced; rolling devices with long service
life and suppressed outgas generation)

IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(perfluoro, lubricant coatings; rolling devices with long service life
and suppressed outgas generation)

IT Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; rolling devices with long service life and suppressed
outgas generation)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; rolling devices with long service life and suppressed
outgas generation)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyoxyalkylene-, perfluoro, lubricant coatings; rolling devices with
long service life and suppressed outgas generation)

IT Lubricants
Nuts (fasteners)
Screws
(rolling devices with long service life and suppressed outgas
generation)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)
(rolling devices with long service life and suppressed outgas
generation)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling devices with long service life and suppressed outgas
generation)

IT Bearings
(rolling; rolling devices with long service life and suppressed outgas
generation)

IT 31694-16-3
RL: TEM (Technical or engineered material use); USES (Uses)
(Victrex PEEK 450CA30, Victrex PEEK 450G, holding piece; rolling
devices with long service life and suppressed outgas generation)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(diamond-like, hard-coat layer; rolling devices with long service life
and suppressed outgas generation)

IT 154769-61-6, Carbon nitride
RL: TEM (Technical or engineered material use); USES (Uses)
(hard-coat layer; rolling devices with long service life and suppressed
outgas generation)

IT 31533-76-3, Pentaphenyl ether 105060-59-1, Demnum S 200 106441-39-8,
Fomblin Z-DIAC 136585-40-5, Tris(2-octyldodecyl)cyclopentane
191359-05-4, S 3105 205886-70-0, Nye Synthetic Oil 2001A
RL: TEM (Technical or engineered material use); USES (Uses)
(lubricant coating; rolling devices with long service life and

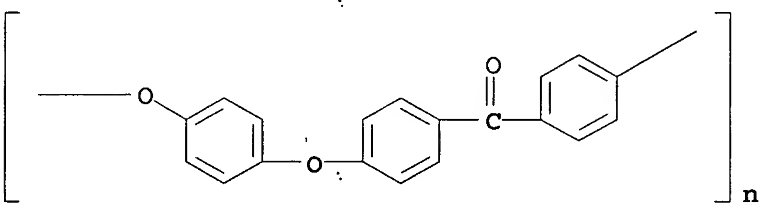
suppressed outgas generation)
IT 12725-30-3, SUS 440C
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling balls, screws and nuts; rolling devices with long service life and suppressed outgas generation)
IT 827341-33-3, Fomblin YVAC 3
RL: TEM (Technical or engineered material use); USES (Uses)
(rolling devices with long service life and suppressed outgas generation)

L39 ANSWER 3 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:359169 HCAPLUS
DN 142:156739
TI Modeling of **spherulitic** crystallization in thermoplastic tow-placement process: **spherulitic** microstructure evolution
AU Guan, X.; Pitchumani, R.
CS Department of Mechanical Engineering, Composites Processing Laboratory, University of Connecticut, Storrs, CT, 06269-3139, USA
SO Composites Science and Technology (**2004**), 64(9), 1363-1374
CODEN: CSTCEH; ISSN: 0266-3538
PB Elsevier Science Ltd.
DT Journal
LA English
AB A numerical study on the evolution of **spherulitic** microstructures during crystallization of fiber-reinforced PEEK in a composite tow-placement process is presented. A model for **spherulitic** microstructure growth within a unit cell formed between adjacent fibers and at the interlayer surface is developed, by accounting for the spatial temperature variation and the temperature history resulting from hot gas torch heating during the process, as discussed in a previous work [Compos. Sci. Tech., in press]. Parametric studies are conducted to elucidate the effects of processing conditions, in terms of torch incidence angle, θ, torch exit diameter, D, torch distance to target, L, hot gas temperature, Tnoz, gas velocity, Unoz, line speed, V, and number of layers in tow substrate, Nlayer, on the crystalline microstructures. The range of average **spherulite** size corresponding to optimal processing conditions based on considerations of overall crystallinity is determined
CC 37-5 (**Plastics** Manufacture and Processing)
ST modeling **spherulitic** crystn fiber reinforced PEEK microstructure
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyether-; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyketone-; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)
IT Crystallization
Polymer morphology
(**spherulitic**; modeling of **spherulitic** crystallization in carbon fiber reinforced-PEEK tow-placement process)

IT **31694-16-3**, APC 2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; modeling of **spherulitic** crystallization in carbon **fiber** reinforced-PEEK tow-placement process)

IT **31694-16-3**, APC 2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; modeling of **spherulitic** crystallization in carbon **fiber** reinforced-PEEK tow-placement process)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 4 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:359150 HCAPLUS
DN 142:156736
TI Modeling of **spherulitic** crystallization in thermoplastic tow-placement process: heat transfer analysis
AU Guan, X.; Pitchumani, R.
CS Department of Mechanical Engineering, Composites Processing Laboratory, University of Connecticut, Storrs, CT, 06269-3139, USA
SO Composites Science and Technology (**2004**), 64(9), 1123-1134
CODEN: CSTCEH; ISSN: 0266-3538
PB Elsevier Science Ltd.
DT Journal
LA English
AB An impingement heat transfer anal. is presented for hot gas torch heating in a tow-placement process of thermoplastic matrix composites. It is shown that exptl. available convective heat transfer correlations for normal and oblique impingement can be adapted to the geometry specific to the process by following first principles. Parametric studies are conducted using a coupled heat transfer and crystallization kinetics model for fabrication of a fiber-reinforced PEEK composite. Effects of processing parameters, in terms of torch incidence angle, θ, torch exit diameter, D, torch distance to target, L, hot gas temperature, Tnoz, gas velocity, Unoz, line speed, V, and number of layers in tow substrate, Nlayer, on the crystallinity development in product are elucidated. Based on an optimal level of crystallinity, a processing window is identified by determining min. and sonic gas velocities at various gas temps. and line speeds.
CC 37-5 (**Plastics** Manufacture and Processing)
ST modeling **spherulitic** crystn fiber reinforced PEEK heat transfer
IT Crystallinity

Heat transfer
Simulation and Modeling
(heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyether-; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

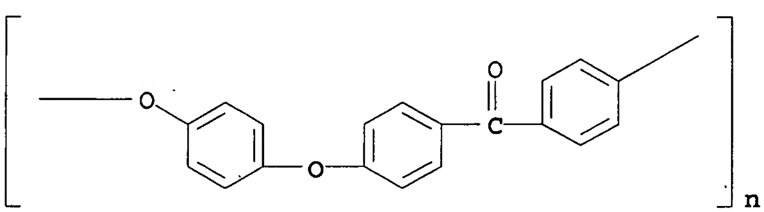
IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(polyketone-; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT Crystallization
(**spherulitic**; heat transfer anal. modeling of **spherulitic** crystallization in carbon fiber-reinforced PEEK tow-placement process)

IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; heat transfer anal. modeling of **spherulitic** crystallization in carbon **fiber**-reinforced PEEK tow-placement process)

IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; heat transfer anal. modeling of **spherulitic** crystallization in carbon **fiber**-reinforced PEEK tow-placement process)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

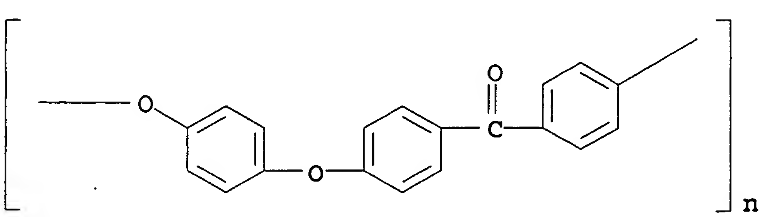


RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 5 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:347876 HCAPLUS
DN 141:72532
TI Sliding performance of polymer composites in liquid hydrogen and liquid nitrogen

AU Zhang, Z.; Klein, P.; Theiler, G.; Huebner, W.
CS Institute for Composite Materials, University of Kaiserslautern, Kaiserslautern, 67663, Germany
SO Journal of Materials Science (**2004**), 39(9), 2989-2995
CODEN: JMTSAS; ISSN: 0022-2461
PB Kluwer Academic Publishers
DT Journal
LA English
AB Outstanding features favor the application of polymers and polymer composites in low-temperature technol. The booming hydrogen technol. is a challenge for these materials, which are considered as seals and bearings in cryogenic pumps. In the present study, three types of thermoplastics, i.e., polyetheretherketone (PEEK), polyetherimide (PEI) and polyamide 6,6 (PA6,6), and one epoxy were considered as matrix materials. **Micron**-sized fillers, i.e., short carbon **fibers**, graphite flakes, and PTFE powders, were incorporated into these polymers together with nano-sized TiO2 particles. Optimized compns. of each matrix were selected from our previous works at room temperature in order to be studied at very low temperature conditions. In particular, frictional tests were carried out with polymer composite pins against polished steel surfaces under constant load over a certain distance in liquid hydrogen and liquid nitrogen. Afterwards, worn surfaces were analyzed by using SEM. It was found out that the tribol. properties in liquid hydrogen are dominated by the matrix materials, in particular thermoplastics perform generally slightly better than thermosetting resins.
CC 38-3 (**Plastics** Fabrication and Uses)
ST sliding polymer composite liq hydrogen nitrogen
IT Polyamides, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(Zytel 110; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(internal lubricant; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pitch-based, Kureha M 2007S; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Polyimides, uses
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimide-; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Bearings
Cryogenics
Friction
Nanoparticles
Sealing compositions
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)

IT Epoxy resins, uses
Polyamides, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT Lubricants
(solid; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 32131-17-2, PA 66, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(Zytel 110; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 61128-46-9
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(assumed monomers; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 7782-42-5, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(flakes; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 9002-84-0, Dyneon 9207
RL: TEM (Technical or engineered material use); USES (Uses)
(internal lubricant; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 461426-90-4, Kronos 2310
RL: TEM (Technical or engineered material use); USES (Uses)
(nanoparticles; sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT 1333-74-0, Hydrogen, uses 7727-37-9, Nitrogen, uses
RL: NUU (Other use, unclassified); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT **31694-16-3**, Victrex 450G 61128-24-3, Ultem 1000 191466-32-7, Der 331-HY 2954 copolymer
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
IT **31694-16-3**, Victrex 450G
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(sliding performance of polymer composites in liquid hydrogen and liquid nitrogen)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 6 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:892841 HCAPLUS
DN 139:365819
TI Production of composite materials comprising high-viscosity polymers
IN Seargeant, Kenneth Malcolm
PA Victrex Manufacturing Limited, UK
SO PCT Int. Appl., 34 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2003093354	A1	20031113	WO 2003-GB1872	20030502	<--

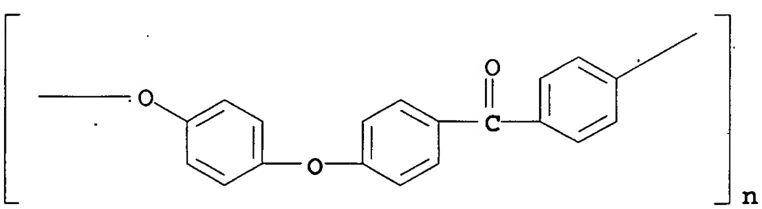
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
	AU 2003239662	A1	20031117	AU 2003-239662	20030502	<--
	US 2005100724	A1	20050512	US 2004-978821	20041102	<--
PRAI	GB 2002-10085	A	20020502	<--		
	GB 2003-6639	A	20030322	<--		
	WO 2003-GB1872	W	20030502	<--		
	WO 2003-GB301872	A2	20030502	<--		
	WO 2004-GB1222	A2	20040319	<--		

AB A method of manufacturing a composite material comprising a matrix material and a fibrous or plate-like filler material comprises the steps of (a) contacting the matrix material and the filler material in a liquid medium to provide a mixture of the matrix material and the filler material in the liquid medium, and (b) removing at least some of the liquid medium to produce a mass comprising the matrix material and the filler material. The matrix material can be a thermofusible material, such as polyether-polyketone or polyether-polysulfone, and the filler material is selected from glasses, graphite, synthetic organic polymers, inorg. materials, minerals, metals, and ceramics. The mass comprising the matrix material and the filler material may be used to make articles by injection molding or extrusion. Thus, aluminum oxide-silica **fibers** (BelCoTex) were mixed with water to form a slurry, followed by addition of polyether-polyketone powder (Victrex **PEEK** 150PF) having **particles** with d50 of 50 **mu.m.** Water was drained, and a solid pad of BelCoTex **fibers** (10) and **PEEK** (90%) was obtained after drying at 150°.
IC ICM C08J003-215
ICS C08K007-02
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 40
ST reinforced polyether polyketone composite; polyether polysulfone reinforced plastic
IT Synthetic **fibers**
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum oxide, Saffil LA; production of composite materials comprising high-viscosity polymers)

IT Synthetic **fibers**
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum oxide-silica, BelCoTex, Saffil RF; production of composite materials comprising high-viscosity polymers)
IT Polyamide **fibers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aramid, Kevlar and Twaron 1091; production of composite materials comprising high-viscosity polymers)
IT Polyamides, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(aromatic; production of composite materials comprising high-viscosity polymers)
IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(**fiber**-reinforced; production of composite materials comprising high-viscosity polymers)
IT Synthetic **fibers**
RL: TEM (Technical or engineered material use); USES (Uses)
(inorg.; production of composite materials comprising high-viscosity polymers)
IT Carbon **fibers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(pitch-based, M 111F and M 115F; production of composite materials comprising high-viscosity polymers)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; production of composite materials comprising high-viscosity polymers)
IT Polyketones
Polysulfones, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polyether-; production of composite materials comprising high-viscosity polymers)
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic; production of composite materials comprising high-viscosity polymers)
IT Polyethers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; production of composite materials comprising high-viscosity polymers)
IT Polyethers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; production of composite materials comprising high-viscosity polymers)
IT Ceramics
Extrusion of plastics and rubbers
Fillers
Molding of plastics and rubbers
(production of composite materials comprising high-viscosity polymers)
IT Polyoxyarylenes
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)

IT Carbon **fibers**, uses
Extruded plastics
Glass, uses
Glass **fibers**, uses
Metals, uses
Minerals, uses
Molded plastics, uses
Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)
IT **31694-16-3**, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Victrex PEEK 150PF and Victrex PEEK 450PF; production of composite materials comprising high-viscosity polymers)
IT 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(production of composite materials comprising high-viscosity polymers)
IT 25014-41-9D, Polyacrylonitrile, oxidized
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)
IT 1344-28-1, Alumina, uses 7782-42-5, Graphite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(production of composite materials comprising high-viscosity polymers)
IT **31694-16-3**, PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Victrex PEEK 150PF and Victrex PEEK 450PF; production of composite materials comprising high-viscosity polymers)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 7 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:793991 HCAPLUS
DN 137:295992
TI Thermoplastic resin composition for molding socket of integrated circuit (IC) package
IN Nishihata, Naomitsu; Tada, Masahito
PA Kureha Kagaku Kogyo K.K., Japan
SO PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

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PI   WO 2002082592          A1     20021017   WO 2002-JP2945          20020327 <--
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
         RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
             CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
             BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
     EP 1376782             A1     20040102   EP 2002-708673          20020327 <--
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
     CN 1502152             A      20040602   CN 2002-807764          20020327 <--
PRAI JP 2001-105212         A      20010403   <--
     WO 2002-JP2945         W      20020327   <--
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AB Title resin composition for IC sockets with strict range of surface resistivity, as well as good elec. insulation, mech. strength, heat- and chemical-resistance, and dimensional stability, comprises (A) thermoplastic resins 40-94, (B) heat-treated carbon precursors having volume resistivity of 102-1010 Ω·cm 5-30, (C) elec. conductive fillers having volume resistivity of ≤102 Ω·cm 1-30 wt%. Thus, a sample was prepared from polyethersulfone Sumika Excel PES 3600G **70**, **particles** prepared by heat-treating oxidized petroleum pitch in an inert atmospheric (C content 91.0%, average diameter 25 **.mu.m**) **15**, and pitch-based carbon **fibers** 10, showing surface resistivity 109 Ω/square, heat deformation temperature 220°, and resistivity fluctuation, as indicated by ratio of the maximum and min. value, 3.75.

IC ICM H01R033-76
ICS C08K003-04; C08K007-06; C08L101-00

CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): **37**, 76

ST oxidized petroleum pitch polyethersulfone carbon **fiber** socket integrated circuit

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(aromatic; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Electric contacts
(connectors; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Electric conductors
(fillers; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Petroleum pitch
(oxidized, carbon precursor; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pitch-based, Dialead K 223QY; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyacrylonitrile-based, Besfight HTA 3000; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; thermoplastic resin composition for molding IC socket with

strict surface resistivity)

IT Polyimides, uses
Polyketones
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyimide-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polysulfone-; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Integrated circuits
(sockets; thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Heat-resistant materials
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT Polythiophenylenes
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

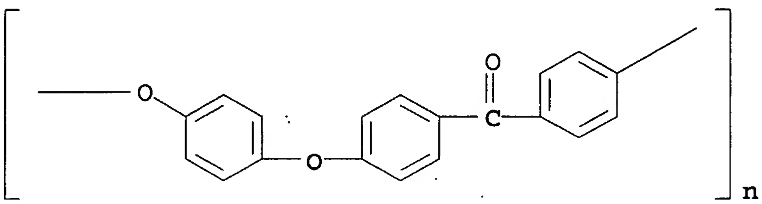
IT Fluoropolymers, uses
Polyamides, uses
Polyesters, uses
Polyoxyphenylenes
Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT 25212-74-2, Fortron KPS-W 214 25667-42-9, Sumika Excel PES 3600G
31694-16-3, PEEK 150P 61128-24-3, Ultem 1010
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT 24968-12-5, Poly(butylene terephthalate) 25038-59-9, PET polyester, uses
26062-94-2, Poly(butylene terephthalate)
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastic resin composition for molding IC socket with strict surface resistivity)

IT **31694-16-3**, PEEK 150P
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(thermoplastic resin composition for molding IC socket with strict surface resistivity)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 8 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:388811 HCAPLUS
DN 136:394477
TI Insulator materials and build-up multilayer printed circuit boards using materials thereof
IN Yamada, Nobutsuki; Taniguchi, Koichiro
PA Mitsubishi Plastics Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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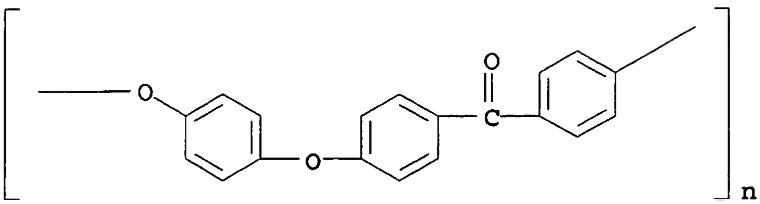
PI	JP 2002151850	A	20020524	JP 2000-343938	20001110 <--
	JP 3806593	B2	20060809		
PRAI	JP 2000-343938		20001110 <--		

AB The title insulator materials for build-up manufacturing comprise (1) 100 weight parts thermoplastic polymer containing 25-70 weight% polyaryl ketone (crystalline melting peak temperature ≥260°) and 25-70 weight% amorphous polyetherimide and (2) 20-50 weight parts inorg. flake filler (average **particle size** .ltoreq.**15** µ m, average aspect ratio ≥30). The circuit boards are prepared by alternately laminating the insulator layers and circuit layers and connecting the circuit layers through via holes. The insulator materials (1) prevents delamination in packaging and migration in glass cloth and (2) provides manufacturing simplification and storage stability of the thermosetting polymers.
IC ICM H05K003-46
ICS H05K003-46; C08K003-00; C08K007-00; C08L071-00; C08L079-08
CC 76-10 (Electric Phenomena)
Section cross-reference(s): **38**, 56
ST polyaryl ketone polyetherimide thermoplastic polymer insulator multilayer circuit
IT Ketones, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(aromatic, poly-, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)

IT Electronic packaging materials
(delamination prevention in; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(flaky filler; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Diffusion
(in glass cloth, prevention of; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Glass **fiber** fabrics
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(insulator substrate; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Printed circuit boards
(multilayer; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Polyimides, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, amorphous, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Polyethers, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyimide-, amorphous, for insulator materials; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Delamination
(prevention of; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Plastics, properties
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(thermoplastics; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT Plastics, properties
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(thermosetting, storage stability in; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT **31694-16-3**, PEEK 450G
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether ether ketone; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT 61128-24-3, Ultem 1000
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether imide; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT 7440-50-8, Copper, properties
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(surface-roughened conductor film; insulator materials and build-up multilayer printed circuit boards using materials thereof)
IT **31694-16-3**, PEEK 450G
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(polyether ether ketone; insulator materials and build-up multilayer printed circuit boards using materials thereof)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 9 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:67919 HCAPLUS
DN 136:295730
TI Microstructure characterization of laser treated surfaces
AU Buchman, A.; Kalil, C.; Dodiuk-Kenig, H.; Rotel, M.
CS RAFAEL, Haifa, 31021, Israel
SO Journal of Adhesion (**2001**), 77(2), 163-181
CODEN: JADNAJ; ISSN: 0021-8464
PB Gordon & Breach Science Publishers
DT Journal
LA English
AB Excimer laser UV radiation presents a new technol. for preadhesion surface treatment of various material adherends. The use of an ArF excimer laser (193 nm) for surface pretreatment of Lexan 9023-112 polycarbonate, Ultem 1000 polyether imide, APC-2/AS-4 graphite **fiber**-reinforced PEEK composite, 2024-T3 aluminum, copper, AZ 91 and AM 50 magnesium, F-4 **fiberglass**-reinforced epoxy resin, PZT piezoelec. wafer, and fused silica was studied. The UV laser surface treatment improved the adhesional strength significantly compared with conventionally treated substrates for all the materials tested. The improved adhesion correlated with changes in morphol. of the irradiated surface, chemical modification and removal of contaminants, which contributed to a strong and durable adhesive bond. Only the connection between the mech. and morphol. effect was studied. The most common microstructure features on the surface after laser irradiation (examined by SEM and AFM) were small conical structures randomly distributed on the irradiated areas. Other features were periodic surface ridges or flat smoothened areas with spread arrays of microcracks. All these morphologies increase the roughness of the surface, enabling mech. interlocking of the adhesive. The roughness is **micron** sized, and uniformly spread on the surface, which presents an advantage over abrasive treatments. The distribution of the features and their size were dependent on the laser parameters (intensity and number of pulses). Some mechanisms are presented, and these interesting phenomena are discussed.
CC 38-3 (**Plastics** Fabrication and Uses)
ST laser excimer irradn surface treatment polymer; metal alloy surface treatment laser excimer irradn; adhesion laser irradiated polymer metal alloy
IT Polycarbonates, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)
IT Acrylic polymers, uses
Epoxy resins, uses
Polyurethanes, uses
Silicone rubber, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Adhesion, physical
Laser radiation
Polymer morphology
Surface structure
(excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Epoxy resins, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(glass **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Polyimides, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-, carbon **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyimide-, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-, carbon **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rubber-modified, adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 238411-98-8, F-4
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 7440-50-8, Copper, processes 25036-53-7, Kapton
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 12616-84-1 12626-81-2, PZT 12634-54-7, AZ 91 61128-24-3, Ultem 1000

145684-19-1, AM 50 148937-43-3, Lexan 9023-112
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 60181-90-0, FM 73 115452-99-8, Hysol EA9394 126776-39-4, FM 300 2K 180616-03-9, LaRC-SI 407636-12-8, F 0011
RL: TEM (Technical or engineered material use); USES (Uses)
(adhesive; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

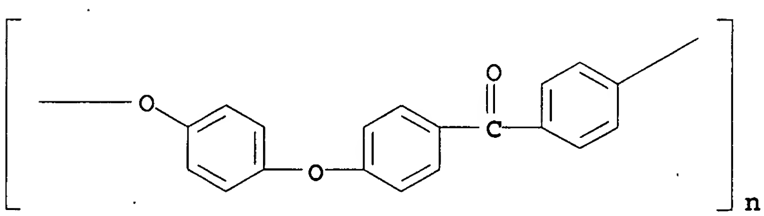
IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 56617-31-3, Argon fluoride (ArF)
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(excimer laser; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT 60676-86-0, Fused silica
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(glass **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced, adherend; excimer laser radiation effect on adhesional strength and morphol. and microstructure of treated metal and polymer surfaces)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

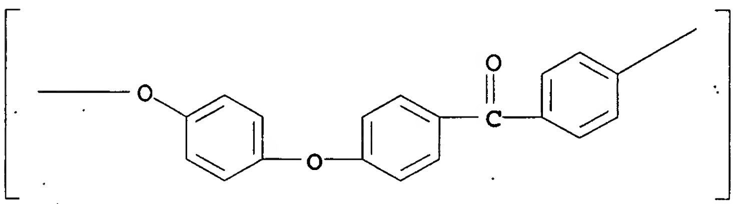
L39 ANSWER 10 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:437366 HCAPLUS
DN 135:181334
TI A small area XPS study of the fracture surface of a thermoplastic-modified CFRP
AU Vickers, P. E.; Fitzpatrick, M. F.; Boniface, L.; Watts, J. F.

CS School of Mechanical and Materials Engineering, University of Surrey, Surrey, GU2 7XH, UK
SO Journal of Materials Science (**2001**), 36(9), 2323-2327
CODEN: JMTSAS; ISSN: 0022-2461
PB Kluwer Academic Publishers
DT Journal
LA English
AB Small area XPS at a spatial resolution of **30 μ**
m has been used to study the heterogeneity of the fracture surface of a carbon **fiber**/epoxy composite with thermoplastic **PEEK** particles incorporated at the interlaminar boundary. Strong evidence was found for a chemical interaction between the **PEEK** particles and the matrix, in particular the curing agent. Careful charge compensation was required, particularly for the non-conducting **PEEK** particles alone which had been mounted on insulating adhesive tape, in order to produce a high quality spectrum. It was also observed that, for the fracture surfaces, the application of low energy electrons was successful in eliminating the differential charging observed during the simultaneous anal. of matrix and particle (insulating), or matrix and **fiber** (conducting).
CC 37-5 (**Plastics** Manufacture and Processing)
ST fracture surface morphol thermoplastic modified carbon **fiber** epoxy composite; PEEK modified carbon **fiber** epoxy composite fracture surface
IT Carbon **fibers**, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Toray T 300; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT Polymer morphology
(fracture-surface; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT Polyketones
RL: MOA (Modifier or additive use); USES (Uses)
(polyether-, aromatic; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT Polyethers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyketone-, aromatic; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT Fracture surface morphology
(polymeric; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT X-ray photoelectron spectra
(small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT Epoxy resins, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT 31694-16-3, PEEK
RL: MOA (Modifier or additive use); USES (Uses)
(Victrex; small-area XPS study of fracture surface of a thermoplastic PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
IT 63804-34-2
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(small-area XPS study of fracture surface of a thermoplastic

PEEK-modified carbon **fiber**-reinforced epoxy resin composite)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 11 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:194452 HCAPLUS
DN 135:167587
TI Effects of processing conditions on the mechanical behavior of carbon-fiber-reinforced PEEK
AU El Kadi, H.; Denault, J.
CS Mechanical Engineering Department, American University of Sharjah, Sharjah, United Arab Emirates
SO Journal of Thermoplastic Composite Materials (**2001**), 14(1), 34-53
CODEN: JTMAEQ; ISSN: 0892-7057
PB Technomic Publishing Co., Inc.
DT Journal
LA English
AB The static and fatigue characteristics of AS4/PEEK laminates were investigated. Coupons machined from plaques obtained using various molding conditions were tested under monotonic tensile, short beam shear, and 3-point flexural fatigue loading. Varying the manufacturing conditions was seen to significantly affect the interlaminar shear strength of the composites, with higher values obtained for the highly crystalline specimens. While for multidirectional laminates the manufacturing conditions seemed to mostly affect the yield stress and the strain and stress to failure, these conditions seem to have only a minor effect on the tensile properties for specimens with unidirectional configurations. The results obtained under fatigue loading, although preliminary, did not show significant dependence on manufacturing parameters.
CC 38-2 (**Plastics** Fabrication and Uses)
Section cross-reference(s): **37**
ST molding carbon fiber PEEK polymer mech property; polyether polyketone carbon fiber molding morphol strength
IT Fatigue, mechanical
(flexural; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Polymer morphology
(fracture-surface; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, AS-4; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Shear strength
(interlaminar; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Crystallinity
Molding of plastics and rubbers
Tensile strength
(molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)

IT Fracture surface morphology
(polymeric; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Polymer morphology
(**spherulitic**; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT Stress, mechanical
(yield; molding condition effects on mech. behavior of carbon fiber-reinforced PEEK)
IT **31694-16-3**, APC-2
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(carbon **fiber**-reinforced; molding condition effects on mech. behavior of carbon **fiber**-reinforced PEEK)
IT **31694-16-3**, APC-2
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(carbon **fiber**-reinforced; molding condition effects on mech. behavior of carbon **fiber**-reinforced PEEK)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 12 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:124291 HCAPLUS
DN 134:179636
TI Lubricious polymer compositions and seal rings with good abrasion resistance against aluminum alloys
IN Ishii, Takuya; Oki, Yoshio; Ito, Kenji; Hirata, Masakazu; Kubota, Kazunori
PA Ntn Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	JP 2001049111	A	20010220	JP 2000-160705	20000530	<--
PRAI	JP 1999-152360	A	19990531	<--		

AB The compns. contain aromatic polyether ketones, carbon **fibers**, inorg. compds. having Mohs hardness ≤3, and tetrafluoroethylene polymers. The seal rings are useful for hydraulic machines. Thus, a ring comprising **PEEK** 450P (aromatic polyether ketone) 70, Besfight HTA-CMF 0160-0H (carbon **fiber**) 10, MOS HIGE (fibrous MgSO) 10, and KTL 610 (polytetrafluoroethylene) 10 parts showed abrasion loss **10 .mu.m** against ADC 12 (Al alloy) shaft (110° oil, 64 m/min circumference speed, under 2 MPa for 5 h).
IC ICM C08L071-00
ICS C08J005-16; C08K003-00; C08K003-04; C08K003-30; C08K007-04;

C10M107-32; C10M107-38; C10M125-02; C10M135-10; F16J015-20;
C08L071-00; C08L027-18; C10N040-02; C10N040-04
CC 38-3 (**Plastics** Fabrication and Uses).
Section cross-reference(s): 56
ST polyether polyketone polytetrachloroethylene lubricious seal ring; abrasion resistance polyether polyketone magnesium oxysulfate; carbon **fiber** polyether polyketone seal ring; aluminum alloy polyether polyketone seal ring; hydraulic machine seal ring polyether polyketone
IT Carbon **fibers**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(Kureca M 101T; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Synthetic **fibers**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(calcium sulfate, Franklin **Fiber** A 30; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Abrasion-resistant materials
(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Synthetic **fibers**
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(magnesium oxysulfate, MOS HIGE; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Carbon **fibers**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(pitch-based; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Carbon **fibers**, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polyacrylonitrile-based; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Polyketones
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, aromatic; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Polyethers, uses
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, aromatic; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Seals (parts)
(ring; lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)
IT Aluminum alloy, base
RL: MSC (Miscellaneous)
(lubricious polymer compns. for seal rings with good abrasion resistance for)
IT 7778-18-9 9002-84-0, KTL 610 98668-15-6, Magnesium oxysulfate
RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)
(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)

IT 31694-16-3, PEEK 450P
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(lubricious polymer compns. for seal rings with good abrasion resistance for aluminum alloys)

L39 ANSWER 13 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:780286 HCAPLUS
DN 134:42808
TI The influence of crystallinity on interfacial properties of carbon and SiC two-fiber/polyetheretherketone (PEEK) composites
AU Park, Joung-Man; Kim, Dae-Sik
CS Department of Polymer Science & Engineering Research Center for Aircraft Parts Technology, Gyeongsang National University, Jinju, 660-701, S. Korea
SO Polymer Composites (**2000**), 21(5), 789-797
CODEN: PCOMDI; ISSN: 0272-8397
PB Society of Plastics Engineers
DT Journal
LA English
AB The influence of the degree of crystallinity on interfacial properties in carbon and SiC two-fiber reinforced PEEK composites was investigated by the two-fiber fragmentation test. This method provides a direct comparison of the same matrix conditions. The tensile strength of the PEEK matrix and the interfacial shear strength (IFSS) of carbon or SiC fiber/PEEK exhibited the maximum values at around 30% crystallinity, and then showed a decline. The tensile modulus increased continuously with an increase in the degree of crystallinity. **Spherulite** sizes in the PEEK matrix became larger as the cooling time from the crystallization temperature increased. Transcrystallinity of carbon fiber/PEEK was developed easily and more densely than with SiC fiber/PEEK. This might have occurred because the unit cell dimensions of the crystallite in the fiber axis direction on the carbon surface was more suitable for making nucleation sites. The IFSS of carbon fiber/PEEK was significantly higher than that of SiC fiber/PEEK because it formed transcrystallinity to IFSS more favorably.
CC 37-5 (**Plastics** Manufacture and Processing)
ST crystallinity fiber reinforced PEEK interfacial property; carbon fiber reinforced PEEK interfacial property; silicon carbide fiber reinforced PEEK composite; transcrystallinity fiber reinforced PEEK composite; morphol fiber reinforced PEEK composite
IT Crystallinity
Elongation, mechanical
Polymer morphology
Stress-strain relationship
Tensile strength
(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
IT Shear strength
(interfacial; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(polyether-; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(silicon carbide, Nicalon fiber; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT Crystallinity
(transcrystallinity; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

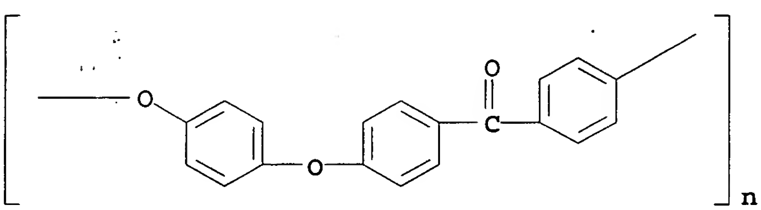
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(effect of crystallinity on interfacial properties of carbon and silicon carbide **fiber**-reinforced PEEK composites)

IT 409-21-2, Silicon carbide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fiber; effect of crystallinity on interfacial properties of carbon and silicon carbide fiber-reinforced PEEK composites)

IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(effect of crystallinity on interfacial properties of carbon and silicon carbide **fiber**-reinforced PEEK composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 14 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2000:582226 HCAPLUS

DN 134:87195

TI PEEK/carbon fiber composites: An evaluation of particle size and processing method on composite properties

AU Bullions, T. A.; Morin, J.; Mehta, R. H.; Loos, A. C.

CS Department of Engineering Science and Mechanics, Virginia Polytechnic Institute and State University, Blacksburg, VA, 24061-0219, USA

SO Annual Technical Conference - Society of Plastics Engineers (**2000**), 58th(Vol. 2), 2309-2313
CODEN: ACPED4; ISSN: 0272-5223

PB Society of Plastics Engineers

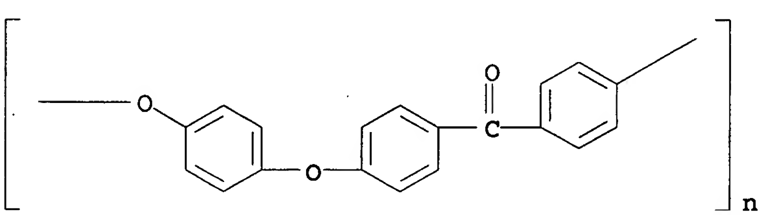
DT Journal

LA English

AB This study examines the effects of particle size on the consolidation quality and mech. performance of carbon fiber-reinforced composites fabricated from dry powder coated carbon fiber tow (towpreg). Poly(ether

ether ketone) (PEEK) powder was sieved to produce three different particle size distributions; a minimal polymer powder deposition system was used to coat carbon fiber tow with these distributions and unsieved polymer. Unidirectional composite panels were manufactured from these four batches of towpreg and APC-2 (PEEK / AS4) prepreg using an identical processing schedule. Poor consolidation quality of some panels limited conclusions. However, these results did bring forward several questions concerning the effects of powder particle size distribution on the processing of composites from PEEK/G30-500 towpreg that may be addressed in future studies.

CC 38-3 (**Plastics** Fabrication and Uses)
ST PEEK carbon fiber prepreg particle size
IT Agglomeration
Particle size
Particle size distribution
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; effect of particle size on consolidation and mech. properties of PEEK powder-coated carbon fiber tow)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK **powder**-coated carbon **fiber** tow)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of particle size on consolidation and mech. properties of PEEK **powder**-coated carbon **fiber** tow)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 15 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:474610 HCAPLUS

DN 133:90482
TI Aromatic polyether-polyketone-based semiconductor wafer carriers
IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi
PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195938	A	20000714	JP 1998-367854	19981224 <--
PRAI	JP 1998-367854		19981224 <--		

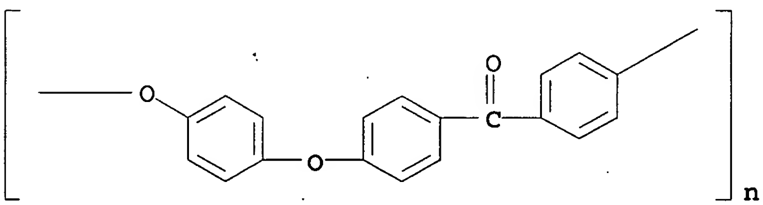
AB The title wafer carriers, with stable surface resistivity, are prepared from 60-90% aromatic polyether-polyketones (e.g., Victrex **PEEK** 450P, Victrex **PEEK** 150P) and 10-40% high-elec. resistance carbon **fibers** with average diameter 3-25 **.mu.m**, average length **50-70**,000 **.mu.m**, and surface resistivity 106-1012 Ω, by melt forming, injection molding, extrusion molding, and optionally cutting.
IC ICM H01L021-68
ICS C08K007-06; C08L071-12
CC 38-3 (**Plastics** Fabrication and Uses)
ST polyether polyketone carbon **fiber** reinforced molding; wafer carrier arom polyether polyketone molding; surface resistivity arom polyether polyketone molding
IT Cutting
Electric resistance
Extrusion of plastics and rubbers
Surface resistance
(aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Extruded plastics
Molded plastics, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-elec. resistance; aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Molding of plastics and rubbers
(injection; aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Molding of plastics and rubbers
(thermoforming; aromatic polyether-polyketone-based semiconductor wafer carriers)
IT Semiconductor materials

(wafer carriers; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT **31694-16-3**, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

IT **31694-16-3**, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based semiconductor wafer carriers)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

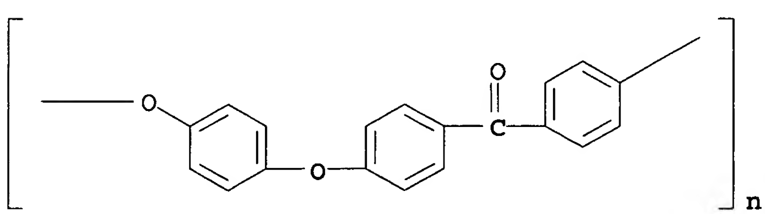


L39 ANSWER 16 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:474607 HCAPLUS
DN 133:90479
TI Aromatic polyether-polyketone-based spinner chucks
IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi
PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000195932	A	20000714	JP 1998-367848	19981224 <--
PRAI	JP 1998-367848		19981224 <--		

AB The title spinner chucks, with stable surface resistivity, are prepared from 60-90% aromatic polyether-polyketones (e.g., Victrex **PEEK** 450P, Victrex **PEEK** 150P) and 10-40% high-elec. resistance carbon **fibers** with average diameter 3-25 **.mu.m**, average length **50-70,000 .mu.m**, and surface resistivity 106-1012 Ω, by melt forming, injection molding, extrusion molding, and optionally shaving.
IC ICM H01L021-68
ICS C08K007-06; C08L071-10
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 76
ST polyether polyketone carbon **fiber** reinforced molding; spinner chuck arom polyether polyketone molding; surface resistivity arom polyether polyketone molding
IT Cutting
Electric resistance
Extrusion of plastics and rubbers
Surface resistance

(aromatic polyether-polyketone-based spinner chucks)
IT Extruded plastics
Molded plastics, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aromatic polyether-polyketone-based spinner chucks)
IT Spinning apparatus
(chucks; aromatic polyether-polyketone-based spinner chucks)
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-elec. resistance; aromatic polyether-polyketone-based spinner chucks)
IT Molding of plastics and rubbers
(injection; aromatic polyether-polyketone-based spinner chucks)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic, carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
IT Molding of plastics and rubbers
(thermoforming; aromatic polyether-polyketone-based spinner chucks)
IT **31694-16-3**, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
IT **31694-16-3**, Victrex PEEK 450P
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced moldings; aromatic polyether-polyketone-based spinner chucks)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 17 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:470434 HCAPLUS
DN 133:90252
TI **Fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity
IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi

PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191901	A	20000711	JP 1998-367849	19981224 <--
PRAI	JP 1998-367849		19981224 <--		

AB The composition, for preparation of extrudate, e.g., liquid crystal displays and
semiconductor devices, having dispersion of surface resistivity 106-1012 Ω, comprises 60-90% a polyether ether aromatic ketone (**PEEK** 450P) and 10-40% carbon **fibers** having average diameter 3-25 **.mu .m** and average length **50**-70000 **.mu.m.**
IC ICM C08L071-08
ICS B23C003-12; B29C045-00; B29C047-00; C08K007-06; B29K061-00; B29K071-00; B29K105-12; B29L031-34
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 76
ST carbon **fiber** reinforced PEEK surface resistivity; polyether ether ketone semiconductor device; liq crystal display **fiber** reinforced PEEK
IT Liquid crystal displays
Semiconductor devices
Surface resistance
(**fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)
IT Reinforced plastics
RL: MOA (Modifier or additive use); USES (Uses)
(**fiber**-reinforced; **fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)
IT Polyketones
Polyketones
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; **fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)
IT Polyethers, properties
Polyethers, properties
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; **fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)
IT 31694-16-3, 1,4-Diphenoxybenzene-phosgene copolymer, SRU 97385-15-4, 1,4-Diphenoxybenzene-phosgene copolymer
RL: DEV (Device component use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**fiber**-reinforced polyether ether ketone resin composition for extrudate with good surface resistivity)

L39 ANSWER 18 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:465025 HCAPLUS
DN 133:90415
TI Carbon **fiber**-reinforced polyether-aromatic ketone moldings

IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi
PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191796	A	20000711	JP 1998-367850	19981224 <--
PRAI	JP 1998-367850		19981224 <--		

AB The moldings have surface resistivity (of cut area) 106-1012 Ω-cm and comprise 60-90% polyether-aromatic ketones having repeating units of p-C6H4OC6H4C(:O) and 10-40% C **fibers** with average **fiber** diameter 3-25 **.mu.m**, average **fiber** length **50-70**,000 **.mu.m**, and preferably volume sp. resistivity 10-2-103 Ω-cm. The moldings are especially suitable for containers for glass substrates for LCD fabrication. Thus, 80 parts of a polyether-aromatic ketone (**PEEK** P 22) and 20 parts of a C black with volume sp. resistivity 1 + 101 Ω-cm (Xylus GCA) were kneaded at 390-410°, pelletized, and injection-molded to give test pieces having small variation in surface sp. resistivities of molding surfaces and cutting areas, resp.
IC ICM C08J005-00
ICS C08K007-06; C08L071-00
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 57, 74
ST carbon **fiber** reinforced polyether arom ketone molding; liq cryst display glass substrate container
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Xylus GCA; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)
IT Containers
(carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for glass substrates used in LCD fabrication)
IT Reinforced plastics
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)
IT Plate glass
RL: TEM (Technical or engineered material use); USES (Uses)
(for LCD; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)
IT Polyketones
Polyketones
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)
IT Polyethers, uses
Polyethers, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)
IT 27380-27-4, Victrex PEK 22P
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)
(carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)

L39 ANSWER 19 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:465024 HCAPLUS
DN 133:90414
TI Carbon **fiber**-reinforced polyether-aromatic ketone moldings
IN Yanagihara, Kayako; Yoshimura, Shoji; Sato, Takashi
PA Mitsui Chemicals Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000191795	A	20000711	JP 1998-367847	19981224 <--
PRAI	JP 1998-367847		19981224 <--		

AB The moldings have surface resistivity (of cut area) 106-1012 Ω-cm and comprise 60-90% polyether-aromatic ketones having repeating units of p-C6H4OC6H4OC6H4C(:O) and 10-40% C **fibers** with average **fiber** diameter 3-25 **.mu.m**, average **fiber** length **50-70**,000 **.mu.m**, and preferably volume sp. resistivity 10-2-103 Ω-cm. The moldings are especially suitable for containers for glass substrates for LCD fabrication. Thus, 80 parts of a polyether-aromatic ketone (**PEEK** 450P) and 20 parts of a C black with volume sp. resistivity 1 + 101 Ω-cm (Xylus GCA) were kneaded at 380-400°, pelletized, and injection-molded to give test pieces having surface sp. resistivity of molding surfaces 1010-1012 Ω-cm and of cutting areas 1010-1011 Ω-cm.
IC ICM C08J005-00
ICS C08K007-06; C08L071-00
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 57, 74
ST carbon **fiber** reinforced polyether arom ketone molding; liq cryst display glass substrate container
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Xylus GCA; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)
IT Containers
(carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for glass substrates used in LCD fabrication)
IT Reinforced plastics
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)
IT Plate glass
RL: TEM (Technical or engineered material use); USES (Uses)
(for LCD; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity for containers for)
IT Polyketones
Polyketones
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)

IT Polyethers, uses
Polyethers, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic; carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)

IT 31694-16-3, PEEK 450P
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-reinforced polyether-aromatic ketone moldings having controlled surface resistivity)

L39 ANSWER 20 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:439253 HCAPLUS
DN 131:103171
TI Ceramic-filled fluoropolymer composite containing polymeric powder for high frequency circuit substrates
IN Horn, Allen F., III; Traskos, Richard R.; Allen, David A.
PA Rogers Corporation, USA
SO U.S., 9 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5922453	A	19990713	US 1997-795857	19970206 <--
PRAI	US 1997-795857		19970206 <--		

AB Ceramic-filled fluoropolymer composites, suitable for use as elec. substrate materials, contain a fluoropolymer matrix, at least one ceramic particulate material, and a high-temperature, high-modulus, finely powdered polymer having a particle size of less than about 200 μm. Substitution of the finely powdered polymeric material for the fluoropolymer matrix within a fairly narrow concentration range (e.g., 2-30 volume %) results in a composite with enhanced flexural modulus but no deleterious effect on dielec. loss. The composite material is plated or clad with conductive material for use in circuit boards. Thus, Victrex 150XF **PEEK** with a mean **particle size of 20 .mu.m** was added to a standard ceramic powder-filled formulation containing 44.5 volume % PTFE and 55.5 volume % silica/titania filler. Sheets of the composition were baked for 8 h at 550° and laminated to copper. When compared with the standard formulation, the substitution of 20 volume % **PEEK** for PTFE increased the flexural modulus by a factor of 3 to 4, and more than doubled the yield stress. Except for an increase in tan δ values, the substitution of **PEEK** for PTFE did not have any particularly deleterious effect on laminate properties. Ultem 1000 poly(ether imide) and a Xydar liquid crystalline polyester were also used to substitute PTFE in standard ceramic-filled formulation.

IC ICM B32B027-04
ICS B32B027-06; B32B027-20; B32B027-28
INCL 428325000
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 76
ST ceramic filled fluoropolymer circuit board; PEEK ceramic filled fluoropolymer circuit board
IT Dielectric loss
Electric insulators

Printed circuit boards
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Glass **fibers**, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Glass spheres
RL: TEM (Technical or engineered material use); USES (Uses)
(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Mechanical properties
(flexural modulus; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyesters, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(liquid-crystalline, Xydar; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Perfluoro compounds
Perfluoro compounds
Vinyl compounds, uses
Vinyl compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(perfluoroalkyl vinyl ether polymers, with tetrafluoroethylene; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Ethers, uses
Ethers, uses
Ethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(perfluoroalkyl vinyl, polymers, with tetrafluoroethylene; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyimides, uses
Polyimides, uses
Polyketones
Polyketones
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polyether-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyethers, uses
Polyethers, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(polyimide-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT Polyethers, uses
Polyethers, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 9002-84-0
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT **31694-16-3**, Victrex PEEK 150XF 61128-24-3, Ultem 1000
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

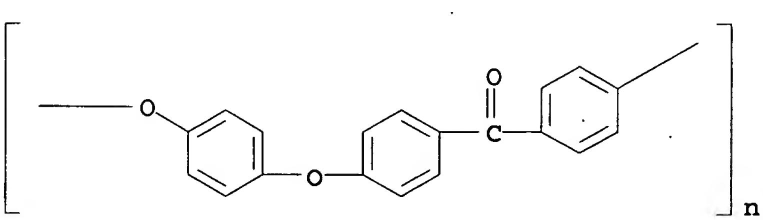
IT 116-14-3D, Tetrafluoroethylene, polymers with perfluoroalkyl vinyl ethers 9002-83-9, Chlorotrifluoroethylene homopolymer 25038-71-5, Ethylene-tetrafluoroethylene copolymer 25067-11-2 25101-45-5, Chlorotrifluoroethylene-ethylene copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT 409-21-2, Silicon carbide, uses 1302-74-5, Corundum, uses 1304-56-9, Beryllia, uses 1309-48-4, Magnesia, uses 7631-86-9, Silica, uses 10043-11-5, Boron nitride, uses 12047-27-7, Barium titanate, uses 12047-64-2, Barium titanium oxide (Ba2Ti9O20) 12049-50-2, Calcium titanate 12060-59-2, Strontium titanate 13463-67-7, Titanium dioxide, uses 13983-17-0, Wollastonite 24304-00-5, Aluminum nitride
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(filler; addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

IT **31694-16-3**, Victrex PEEK 150XF
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(addition of polymer powder to ceramic-filled fluoropolymer composites for use in circuit boards increases flexural modulus without adverse effect on dielec. loss)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 21 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:276134 HCAPLUS
DN 131:45498
TI Influence of processing on morphology, interface, and delamination in PEEK/carbon composites
AU Vu-Khanh, T.; Frikha, S.
CS Universite de Sherbrooke Fac. Sci. Appl./Genie Mecanique, Sherbrooke, QC, J1K 2R1, Can.
SO Journal of Thermoplastic Composite Materials (**1999**), 12(2), 84-95
CODEN: JTMAEQ; ISSN: 0892-7057
PB Technomic Publishing Co., Inc.
DT Journal
LA English
AB The role of morphol. in the bulk matrix and at the carbon fiber-PEEK matrix interphase on the composite performance was studied. The morphol. of the matrix is observed by optical microscopy and compared with the anal. results from DSC. The composite performance is investigated by Mode-I and Mode-II delamination tests. The results show that the transcryst. region strongly depends on the molding parameters and controls the fiber/matrix interfacial strength in the composite. A better-defined **spherulite** structure is observed with specific molding temperature and residence time at melt temperature The cooling rate also strongly affects the fiber/matrix interaction and the transcryst. phase. The Mode-I delamination performance is controlled mainly by the matrix morphol., whereas the Mode-II delamination resistance is related to the fiber/matrix interfacial strength and the interphase structure in the composite.
CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **38**
ST molding morphol interface delamination PEEK composite; carbon fiber PEEK composite molding property
IT Delamination
Interface
Molding of plastics and rubbers
Polymer morphology
(effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite; effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)
IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-; effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)
IT Polyethers, properties
Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyketone-; effect of processing on morphol., interface and delamination in PEEK-carbon fiber composites)
IT **31694-16-3**, Victrex 150G 146837-45-8, NCS 1025
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)

(effect of processing on morphol., interface and delamination in PEEK-carbon **fiber** composites)

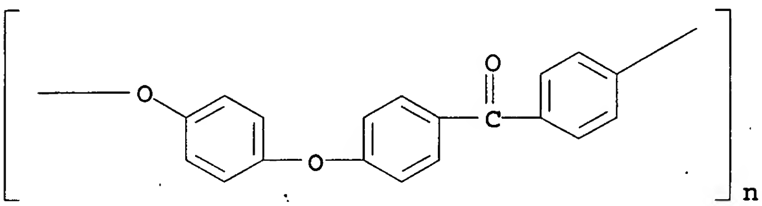
IT **31694-16-3**, Victrex 150G

RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)

(effect of processing on morphol., interface and delamination in PEEK-carbon **fiber** composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 22 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:461756 HCAPLUS

DN 129:203603

TI A study of degree of crystallinity on the interfacial properties of carbon and SiC two-fiber reinforced poly(etheretherketone)

AU Park, Joung-Man; Kim, Dae-Sik; Lee, Sang-Il

CS Dept. of Polymer Science & Engineering, Regional Research Center for Aircraft Parts Technology, Gyeongsang National University, Jinju, 660-701, S. Korea

SO Korea Polymer Journal (**1998**), 6(2), 200-209
CODEN: KPJOE2; ISSN: 1225-5947

PB Polymer Society of Korea

DT Journal

LA English

AB The effects of the degree of crystallinity in carbon and SiC two-fiber reinforced PEEK composites on their interfacial properties were investigated by two-fiber fragmentation test. This method can provide a direct comparison in a same matrix condition. Tensile strength of PEEK matrix and the interfacial shear strength (IFSS) of carbon or SiC fiber/PEEK exhibited maximum values at around 30% crystallinity, and then decreased. Tensile modulus increased continuously with an increase in the degree of crystallinity. **Spherulite** size of PEEK matrix became large as the cooling time from crystallization temperature increased. Transcrystallinity of carbon fiber/PEEK was induced more easily and developed more densely than SiC fiber/PEEK case. This may be because unit cell dimensions of crystallites in fiber axis direction on the carbon surface can be suitable for making nucleation sites. IFSS of carbon fiber/PEEK was significantly higher compared to that of SiC fiber/PEEK due to formed transcrystallinity contributing to IFSS favorably.

CC 37-5 (**Plastics** Manufacture and Processing)

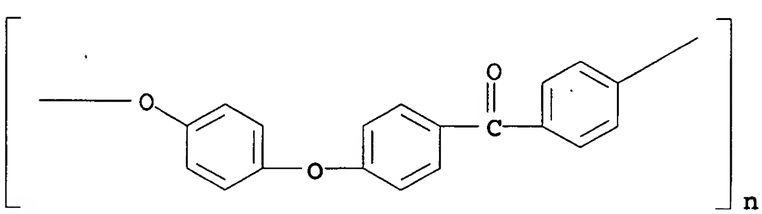
ST crystallinity interface fiber reinforced polyether polyketone; carbon fiber PEEK interface crystallinity; silicon carbide fiber PEEK interface crystallinity; transcrystallinity PEEK composite interface property

IT Carbon fibers, uses

RL: MOA (Modifier or additive use); USES (Uses)

(TZ-307; degree of crystallinity on interfacial properties of carbon

fiber- and SiC fiber-reinforced PEEK)
IT Crystallinity
Polymer morphology
Shear strength
Stress-strain relationship
Tensile strength
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT Synthetic fibers
Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(silicon oxycarbide, Nicalon; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT Crystallinity
(transcrystallinity; degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT 409-21-2, Silicon carbide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(degree of crystallinity on interfacial properties of carbon fiber- and SiC fiber-reinforced PEEK)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(degree of crystallinity on interfacial properties of carbon **fiber**- and SiC **fiber**-reinforced PEEK)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(degree of crystallinity on interfacial properties of carbon **fiber**- and SiC **fiber**-reinforced PEEK)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

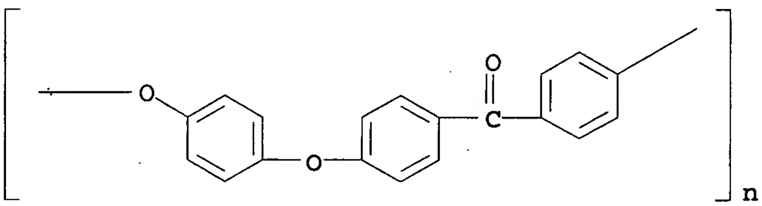
L39 ANSWER 23 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:167411 HCAPLUS
DN 128:168343
TI Hypervelocity impact damage to composite materials
AU Tennyson, R. C.; Shortliffe, G. D.

CS University of Toronto Institute for Aerospace Studies, North York, ON, M3H 5T6, Can.
SO International Conference on Composite Materials, Proceedings, 11th, Gold Coast, Australia, July 14-18, 1997 (**1997**), Volume 2, 474-484.
Editor(s): Scott, Murray L. Publisher: Australian Composite Structures Society, Melbourne, Australia.
CODEN: 65TEAE
DT Conference
LA English
AB An exptl. program undertaken to study the impact damage of laminated graphite/PEEK plates and cylinders subjected to particle impacts at velocities ranging from 3 to 7 km/s was described. This velocity range corresponds to that found in space due to impacting micrometeoroids and space debris (MOD). To assess this problem, impact tests were conducted at three facilities in the U.S., with most of the tests undertaken at the NASA Johnson Space Center in Houston, using their two-stage light gas guns. Aluminum **spheres** were fired at composite material targets using various diams. and velocities to determine the damage correlation with energy, laminate thickness and material properties. Flat plate targets were first investigated to establish damage thresholds, followed by tests on laminated cylinders characteristic of the robot arm structures being designed for the Space Station. Correlations found in terms of impact crater size, front face total damage, rear face spallation damage and secondary damage resulting from the ejecta plume impacting the rear wall of the cylinder are discussed.
CC 38-3 (**Plastics** Fabrication and Uses)
ST hypervelocity impact damage PEEK composite; graphite fiber PEEK laminate impact damage
IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite, PEEK reinforced by; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
IT Testing of materials
(impact; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, graphite fiber-reinforced; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, graphite fiber-reinforced; impact damage of laminated graphite fiber-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(graphite **fiber**-reinforced; impact damage of laminated graphite **fiber**-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(graphite **fiber**-reinforced; impact damage of laminated graphite **fiber**-reinforced PEEK plates and cylinders subjected to particle impacts at velocities corresponding to that found in space)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 24 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1998:147500 HCAPLUS

DN 128:218082

TI The effect of PEEK fibers and powder on joints made with a high temperature adhesive

AU Dixon, D. G.; Harris, S. J.; Dempster, M.; Nicholls, P.

CS Sowerby Research Center, British Aerospace, Bristol, BS12 7QW, UK

SO Journal of Adhesion (**1998**), 65(1-4), 131-162
CODEN: JADNAJ; ISSN: 0021-8464

PB Gordon & Breach Science Publishers

DT Journal

LA English

AB High temperature adhesives typically exhibit low levels of peel strength since they tend to be more brittle than typical toughened adhesives used for lower temperature applications. It was found that incorporating thermoplastic fibers or powder into the bondline of a joint made with a high-temperature epoxy-based adhesive resulted in significant improvements in peel strength. Poly(ether ether ketone) (PEEK) fibers and powder were incorporated into the adhesive resin and used in aluminum joints. These were tested in peel and single lap shear using a range of fiber lengths, orientations, and volume fractions. Large increases in peel strength could be achieved but that lap shear strength was degraded with most types of modification. However, some modifications resulted in significant increases in peel strength with limited decrease in lap shear strength. These improved properties were achieved using phys. modifications rather than chemical alteration of the resin.

CC 38-3 (**Plastics** Fabrication and Uses)

ST epoxy adhesive PEEK additive adhesion aluminum

IT Adhesion, physical
Joints, mechanical
(PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Epoxy resins, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(PEEK fibers and powder effect on aluminum joints with high temperature epoxy adhesive)

IT Adhesives

(high-temperature; PEEK fibers and powder effect on aluminum joints with high
temperature epoxy adhesive)

IT Polyketones
Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, fiber; PEEK fibers and powder effect on aluminum joints
with high temperature epoxy adhesive)

IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; PEEK fibers and powder effect on aluminum joints with high
temperature epoxy adhesive)

IT Synthetic polymeric fibers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-polyketones; PEEK fibers and powder effect on aluminum
joints with high temperature epoxy adhesive)

IT Polyethers, uses
Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, fiber; PEEK fibers and powder effect on aluminum joints
with high temperature epoxy adhesive)

IT Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-; PEEK fibers and powder effect on aluminum joints with
high temperature epoxy adhesive)

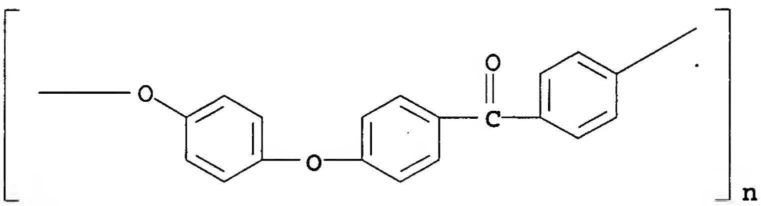
IT 204143-34-0, FM 350NA
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(PEEK fibers and powder effect on aluminum joints with high temperature
epoxy
adhesive)

IT 12616-84-1
RL: PRP (Properties)
(PEEK fibers and powder effect on aluminum joints with high temperature
epoxy
adhesive)

IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(**fibers**; **fibers** and **powder** effect on
aluminum joints with high temperature epoxy adhesive)

IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(**fibers**; **fibers** and **powder** effect on
aluminum joints with high temperature epoxy adhesive)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX
NAME)



L39 ANSWER 25 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:138130 HCAPLUS
DN 128:141582
TI Processing, morphology, interface and delamination in PEEK/carbon composites
AU Vu-Khanh, T.; Frikha, S.
CS Faculte des sciences appliquees / Genie mecanique, Universite de Sherbrooke, Sherbrooke, QC, J1K 2R1, Can.
SO Proceedings of the American Society for Composites, Technical Conference (**1997**), 12th, 912-921
CODEN: PAMTEG; ISSN: 1084-7243
PB Technomic Publishing Co., Inc.
DT Journal
LA English
AB It is well known that the mech. properties of thermoplastic composites depend upon processing parameters such as cooling rate, melting temperature and residence time at the melt temperature This is due to the change in matrix morphol., fiber/matrix interaction and interphase structure with processing conditions. In previous works on carbon fiber/PEEK composites, it has been found that an increase in the melting temperature and the residence time improves the short-beam-shear strength of the composite, and increasing the cooling rate results in a decrease in this strength. Crystallinity at the interface appeared to be efficient only if there is a strong physicochem. interaction between the matrix and the fiber. Moreover, transcrystallinity does not seem to be the primary factor responsible for a good fiber/matrix interaction in thermoplastic composite materials. The purpose of this work is to foster the understanding of the role of morphol. in the bulk matrix and at the fiber/matrix interphase in the composite performance. The morphol. of the matrix is observed by optical microscopy and compared with the anal. results from differential scanning calorimetry (DSC). The composite performance is investigated by Mode I and Mode II delamination tests. The results show that the transcryst. region strongly depends on the molding parameters and controls the fiber/matrix interfacial strength in the composite. A better defined **spherulite** structure is observed with specific molding temperature and residence time at melt temperature The cooling rate also strongly affects the fiber/matrix interaction and the transcryst. phase. The Mode I delamination performance is mainly controlled by the matrix morphol., whereas the Mode II delamination resistance is rather related to the fiber/matrix interfacial strength and the interphase structure in the composite.
CC 38-2 (**Plastics** Fabrication and Uses)
ST PEEK graphite fiber composite morphol delamination
IT Synthetic polymeric fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(PEEK, nonwoven fabrics from graphite fibers and; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)
IT Molding of plastics and rubbers

(compression; effect of temperature, residence time at melt temperature and cooling
rate during molding on transcrystallinity and delamination of
PEEK-graphite fiber composites)

IT Delamination
Fracture toughness
Polymer morphology
(effect of temperature, residence time at melt temperature and cooling rate during
molding on transcrystallinity and delamination of PEEK-graphite fiber
composites)

IT Nonwoven fabrics
(graphite fiber-PEEK fiber, composites with PEEK; effect of temperature,
residence time at melt temperature and cooling rate during molding on
transcrystallinity and delamination of PEEK-graphite fiber composites)

IT Carbon fibers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(graphite, composites with PEEK; effect of temperature, residence time at
melt temperature and cooling rate during molding on transcrystallinity and
delamination of PEEK-graphite fiber composites)

IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); TEM (Technical or engineered material
use); PROC (Process); USES (Uses)
(polyether-, composites with graphite fibers and PEEK-graphite fiber
nonwoven fabrics; effect of temperature, residence time at melt temperature and
cooling rate during molding on transcrystallinity and delamination of
PEEK-graphite fiber composites)

IT Polyketones
Polyketones
Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-, fiber, PEEK, nonwoven fabrics from graphite fibers and;
effect of temperature, residence time at melt temperature and cooling rate during
molding on transcrystallinity and delamination of PEEK-graphite fiber
composites)

IT Polyethers, uses
Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); TEM (Technical or engineered material
use); PROC (Process); USES (Uses)
(polyketone-, composites with graphite fibers and PEEK-graphite fiber
nonwoven fabrics; effect of temperature, residence time at melt temperature and
cooling rate during molding on transcrystallinity and delamination of
PEEK-graphite fiber composites)

IT Polyethers, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-, fiber, PEEK, nonwoven fabrics from graphite fibers and;
effect of temperature, residence time at melt temperature and cooling rate during
molding on transcrystallinity and delamination of PEEK-graphite fiber
composites)

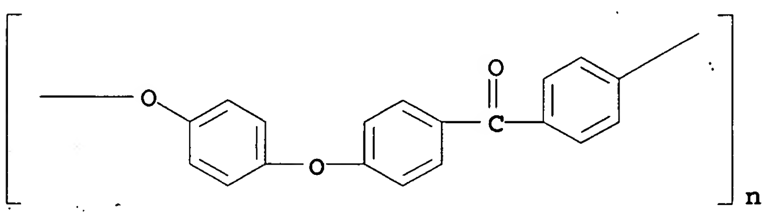
IT Crystallinity
(transcrystallinity; effect of temperature, residence time at melt
temperature and

cooling rate during molding on transcrystallinity and delamination of PEEK-graphite fiber composites)

IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(composites with graphite **fibers** and PEEK-graphite **fiber** nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite **fiber** composites)

IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(composites with graphite **fibers** and PEEK-graphite **fiber** nonwoven fabrics; effect of temperature, residence time at melt temperature and cooling rate during molding on transcrystallinity and delamination of PEEK-graphite **fiber** composites)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 26 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:38281 HCAPLUS
DN 128:89589
TI Polyether-ketone resin compositions and carriers used in processing and treatment of semiconductor wafers
IN Nomura, Hideo; Maeda, Mitsuo
PA Sumitomo Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10007898	A	19980113	JP 1996-169934	19960628 <--
PRAI	JP 1996-169934		19960628 <--		

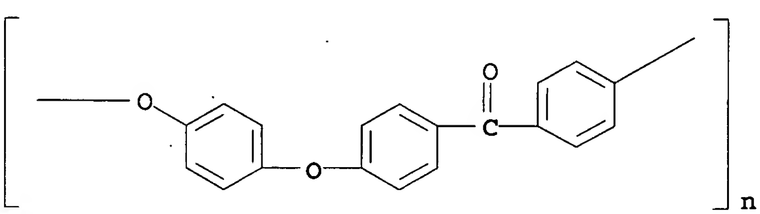
AB Title compns. comprise 100 parts **PEEK** resins and 5-100 parts carbon **fibers** having average diameter (Da) of 5-**20** . **mu.m** and average length (La) of **30**-500 **.mu .m.** A blend of 100:15 Victrex **PEEK** 150P and carbon **fibers** with Da 6 μm and La 160 μm was injection molded into a test piece showing good appearance, heat shrinkage 0.81%, linear expansion coefficient 4.0 + 10-5/C° at 150-200°, flexural modulus 68,500 kg/cm3, heat distortion temperature 223°, resistivity 1010-1011 Ω, abraded amount (Taber test) 5.2 mg/103 times.

IC ICM C08L071-00
ICS B65D085-86; C08K007-06; H01L021-68
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **38**, 76
ST PEEK carbon **fiber** carrier semiconductor wafer; heat resistance polyether polyketone carbon **fiber**; antistatic molding polyether polyketone carbon **fiber**; mech strength polyether polyketone carbon **fiber**
IT Heat-resistant materials
Semiconductor devices
(carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)
IT Carbon **fibers**, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)
IT Electric insulators
(carriers; carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)
IT Polyketones
Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)
IT Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)
IT 31694-16-3, Victrex PEEK
RL: TEM (Technical or engineered material use); USES (Uses)
(carbon **fiber**-containing polyether-polyketone moldings as carriers for semiconductor wafers)

L39 ANSWER 27 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:797821 HCAPLUS
DN 128:48890
TI Wear mechanisms of polyetheretherketone composites filled with various kinds of SiC
AU Xue, Qun-Ji; Wang, Qi-Hua
CS Lanzhou Institute of Chemical Physics, Laboratory of Solid Lubrication, Chinese Academy of Sciences, Lanzhou 730000, Peop. Rep. China
SO Wear (**1997**), 213(1-2), 54-58
CODEN: WEARAH; ISSN: 0043-1648
PB Elsevier Science S.A.
DT Journal
LA English
AB Nanometer SiC, **micron** SiC, and whisker SiC were used as fillers in PEEK, and the influence of these fillers on the friction and wear of the PEEK composites was studied. The composite specimens with various kinds of SiC were prepared by compression molding. Their friction and wear properties were investigated under ambient conditions in a block-on-ring machine by running a plain carbon steel (AISI 1045 steel) ring against the PEEK composite block. The morphologies of the wear traces and wear debris were observed by SEM. Exptl. results showed that all these fillers reduced the friction of PEEK and that 10.0 weight nanometer SiC as filler was very effective in reducing the wear of PEEK. The wear rate of PEEK filled with 10.0 weight whisker SiC was almost unaffected. SEM analyses indicated that severe abrasive wear occurred on the worn surfaces of PEEK composites filled with **micron**-sized SiC and whisker SiC. In the case of

the carbon steel ring/nm SiC filled composite block, a thin, uniform, and tenacious transfer film was formed on the surface of the steel-ring surface. The wear mechanisms of PEEK composites filled with nanometer SiC, **micron** SiC, and whisker SiC were different.

CC 37-5 (**Plastics** Manufacture and Processing)
ST silicon carbide PEEK wear friction; tribol polyether polyketone silicon carbide
IT Wear
(abrasive; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT Polyketones
Polyketones
RL: PRP (Properties)
(polyether-; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(polyketone-; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT Synthetic **fibers**
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(silicon carbide; wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT Polymer morphology
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT 409-21-2, Silicon carbide, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT **31694-16-3**, PEEK
RL: PRP (Properties)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
IT **31694-16-3**, PEEK
RL: PRP (Properties)
(wear mechanisms of poly(etheretherketone) composites filled with various kinds of SiC)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

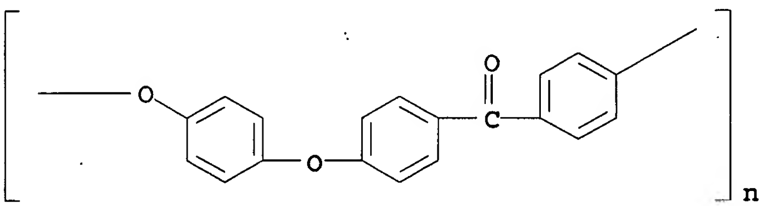


RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 28 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:763660 HCAPLUS
DN 127:347041
TI MOD impact damage on composite materials in space

AU Tennyson, R. C.; Shortliffe, G.
CS University of Toronto Institute for Aerospace Studies, North York, ON, M3H 5T6, Can.
SO European Space Agency, [Special Publication] ESA SP (**1997**), ESA SP-399(Materials in Space Environment), 485-492
CODEN: ESPUD4; ISSN: 0379-6566
PB ESA Publications
DT Journal
LA English
AB Spacecraft in low earth orbit were vulnerable to impact damage from collisions with micrometeoroids and orbital debris (MOD). The damage resulting from hypervelocity impact tests conducted on various graphite fiber-reinforced PEEK laminates impacted by aluminum **spheres** over a velocity range of 3 to 7 km/s was studied. Flat plates of various laminate thicknesses and fiber orientations were first investigated to assess impact damage at different energies. Subsequently, circular cylindrical laminated tubes were tested which closely modeled the Canadian robot arm structures planned for utilization on the International Space Station. In these latter tests, overwraps of MLI were included to better model the actual configuration in space. All of the impact test results were found to correlate with an energy parameter that included target/impactor material properties. Impact damage was measured in terms of crater size, total front and rear face damage areas and secondary debris plume effects. High speed photog. clearly showed the growth in the debris plume after front wall penetration and the subsequent damage that resulted from the hypervelocity impacts of these particles. From a design point of view, it is the plume damage that causes the greatest structural damage that results in a large region of local fractures which can reduce the structural stiffness and buckling strength by as much as 50%. Tests were also conducted with Nextel fabric, including an interior "sock" design, that were shown to mitigate this plume damage. A case study is also presented to demonstrate the application of this data to estimate the impact probability and damage for a given structural configuration over a specified lifetime in low earth orbit. Impact probabilities were estimated for the orbital parameters using the NASA Environet model.
CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **38**
ST composite impact damage micrometeoroid orbital debris; graphite fiber PEEK impact damage; aluminum **sphere** impact damage PEEK composite
IT Carbon fibers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(graphite, AS 4 and IM 7; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum **spheres**)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, aromatic; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum **spheres**)
IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, aromatic; hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum **spheres**)
IT 7429-90-5, Aluminum, uses
RL: NUU (Other use, unclassified); USES (Uses)
(hypervelocity impact damage of graphite fiber-reinforced PEEK laminates impacted by aluminum **spheres**)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(hypervelocity impact damage of graphite **fiber**-reinforced

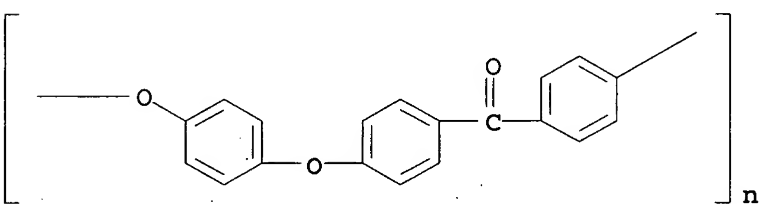
PEEK laminates impacted by aluminum **spheres**)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(hypervelocity impact damage of graphite **fiber**-reinforced
PEEK laminates impacted by aluminum **spheres**)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

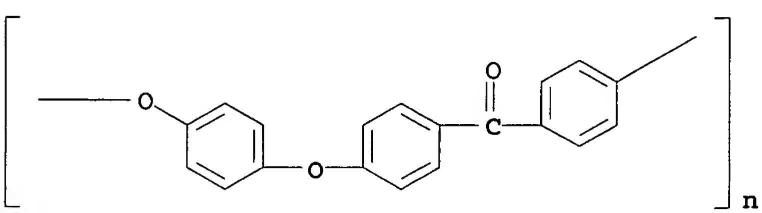
L39 ANSWER 29 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:687457 HCAPLUS
DN 127:347047
TI Microfractography of CFRP with thermoplastic matrix (APC-2)
AU Franz, Horst E.
CS Daimler Benz A.-G., Munich, D-81663, Germany
SO Materialwissenschaft und Werkstofftechnik (**1997**), 28(10), 481-499
CODEN: MATWER; ISSN: 0933-5137
PB Wiley-VCH
DT Journal
LA German
AB Microfractog. features of C fiber-reinforced compds. with a thermoplastic matrix consisting of poly(ether ether ketone) were investigated due to specific loading modes. Expts. were performed using APC-2 C-prepreg and IM 6 fibers with a PEEK matrix. Interlaminar fractures were produced using static mode I, II, and mixed mode loading. Simultaneously the fracture toughness was measured as well as the influence of crack growth velocity and temperature on the fracture morphol. Interlaminar fatigue fractures show specific fracture morphologies which are influenced from the **spherulitic** microstructure of the semicryst. matrix. The ductile fracture morphol. corresponds to lower and the brittle one to higher crack growth velocity.
CC 37-5 (**Plastics** Manufacture and Processing)
ST polyether polyketone thermoplastic carbon fiber microfractog
IT Polymer morphology
(fracture-surface; microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Carbon fibers, uses
Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, polyacrylonitrile-based, Magnamite IM 6; microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Fracture (materials)
(microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in

formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-; microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Polyethers, properties
Polyethers, properties
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyketone-; microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT Fracture surface morphology
(polymeric; microfractog. of carbon fiber-reinforced thermoplastic PEEK)
IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)
(**fiber**-reinforced; microfractog. of carbon **fiber** -reinforced thermoplastic PEEK)
IT **31694-16-3**, APC-2
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)
(**fiber**-reinforced; microfractog. of carbon **fiber** -reinforced thermoplastic PEEK)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 30 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:427610 HCAPLUS
DN 127:82353
TI Powder coating process for thermoplastic prepregs with JFY-1 machine
AU Li, Yuanzhen; Lou, Kuiyang; Fu, Ying; Li, Feng; Zhang, Fengfan
CS Institute of Aeronautical Materials, Beijing, 100095, Peop. Rep. China
SO International SAMPE Symposium and Exhibition (**1996**), 41(Materials and Process Challenges: Aging Systems, Affordability, Alternative Applications, Book 2), 1724-1730
CODEN: ISSEEG; ISSN: 0891-0138
PB Society for the Advancement of Material and Process Engineering
DT Journal
LA English
AB A JFY-1 electrostatic powder coating machine was developed for the production of thermoplastic prepregs. Its construction and process was described, especially the closed loop control system which could guarantee the deviation of
the weight fraction of resin on prepregs to within ±3%. The process was optimized by orthogonal expts. where the most sensitive factors were determined Fiber-reinforced PEEK prepregs with good mech. properties were prepared
CC 38-2 (**Plastics** Fabrication and Uses)
ST powder coating process thermoplastic prepreg; fiber reinforced PEEK prepreg prodn app

IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(PEEK prepregs reinforced with; powder coating process for production of)
IT Reinforced plastics
Reinforced plastics
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(fiber-reinforced thermoplastics; powder coating process for production of)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(graphite, PEEK prepregs reinforced with; powder coating process for production of)
IT Polyketones
Polyketones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, fiber-reinforced prepregs; powder coating process for production of)
IT Polyethers, uses
Polyethers, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyketone-, fiber-reinforced prepregs; powder coating process for production of)
IT Coating process
(powder; for production of fiber-reinforced thermoplastic prepregs)
IT **31694-16-3P**, PEEK
RL: IMF (Industrial manufacture); **POF (Polymer in formulation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(**fiber**-reinforced prepregs; **powder** coating process for production of)
IT **31694-16-3P**, PEEK
RL: IMF (Industrial manufacture); **POF (Polymer in formulation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(**fiber**-reinforced prepregs; **powder** coating process for production of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)

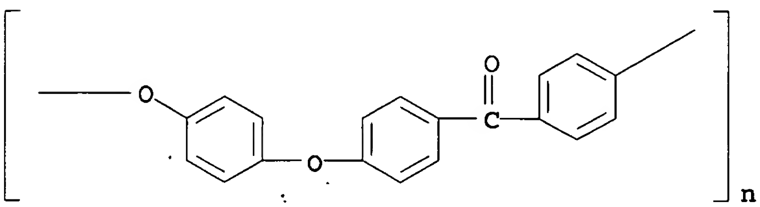


RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 31 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:210359 HCAPLUS
DN 126:212938
TI Processing of CF/PEEK thermoplastic composites from flexible preforms
AU Ye, Lin; Friedrich, Klaus

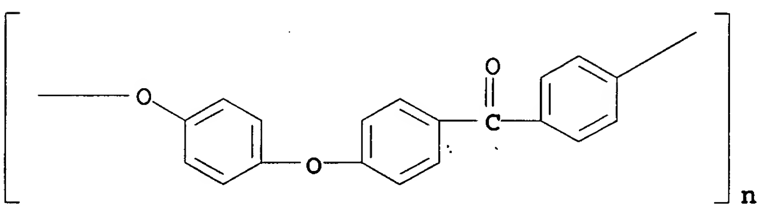
CS Centre for Advanced Materials Technology, Department of Mechanical and Mechatronic Engineering, University of Sydney, NSW 2006, Australia
SO Advanced Composite Materials (**1997**), 6(2), 83-97
CODEN: ACOAEM; ISSN: 0924-3046
PB VSP
DT Journal
LA English
AB Impregnation and consolidation mechanisms in carbon fiber (CF)/PEEK thermoplastic composites processed from commingled yarn and powder/sheath fiber bundle preforms were studied. Impregnation models were developed to qual. describe the consolidation processes during composite processing. These models simulate void contents as a function of preform geometry and processing variables. Good correlations with exptl. data were obtained. Based on a desired min. level of void content, optimum processing windows for CF/PEEK composites from these flexible product forms were generated. A parameter was introduced to describe the degree of commingled status which controls consolidation of commingled yarn thermoplastic composites. If comparing impregnation and consolidation mechanism of CF/PEEK commingled yarn composites with those in materials processed from powder/sheath fiber bundles, longer processing times and higher applied pressures may be required ot reach full consolidation.
CC 38-2 (**Plastics** Fabrication and Uses)
Section cross-reference(s): **37**
ST carbon fiber PEEK thermoplastic composite processing; model void content carbon fiber PEEK; impregnation mechanism PEEK carbon fiber; consolidation mechanism PEEK carbon fiber
IT Impregnation
(impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
IT Polyketones
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyether-; impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
IT Polyethers, uses
Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(polyketone-; impregnation and consolidation mechanisms in carbon fiber/PEEK composites from commingled yarns and powder/sheath fiber bundle preforms)
IT **31694-16-3**, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon **fiber** /PEEK composites from commingled yarns and **powder**/sheath **fiber** bundle preforms)

IT **31694-16-3**, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(impregnation and consolidation mechanisms in carbon **fiber** /PEEK composites from commingled yarns and **powder**/sheath **fiber** bundle preforms)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 32 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:141689 HCAPLUS
DN 126:158188
TI Fine poly(ether ether ketone) powders
AU Facinelli, J. V.; Brink, A. E.; Liu, S.; Li, H.; Gardner, S. L.; Davis, R. M.; Riffle, J. S.; Marrocco, M.; Harding, S.
CS NSF S&T Center High Performance Polymeric Adhesives and Composites, Virginia Polytechnic Inst., Blacksburg, VA, 24061, USA
SO Journal of Applied Polymer Science (**1997**), 63(12), 1571-1578
CODEN: JAPNAB; ISSN: 0021-8995
PB Wiley
DT Journal
LA English
AB The phys. form of polymers is often important for carrying out subsequent processing operations. For example, fine powders are desirable for molding and sintering compds. because they consolidate to produce void-free components. The objective of this work is to prepare fine polymeric particulates suitable for processing into **fiber** -reinforced polymer composites. **Micron**-size particles of poly(ether ether ketone) (PEEK) were prepared by rapidly quenching solns. of these materials; PEEK pellets were dissolved at temps. near the PEEK m.p. in a mixture of terphenyls and quaterphenyls, and then the solution was quenched to a temperature between the Tg and Tm (≈ 225°C) by adding a room-temperature eutectic mixture of di-Ph ether and biphenyl. A supersatd., metastable solution of PEEK resulted, causing rapid nucleation. Fine PEEK particles rapidly crystallized from this solution The average particle size was measured using transmission electron microscopy, atomic force microscopy, and by light scattering of aqueous suspensions which had been fractionated by centrifugation. The average particle diameter was about 0.6 μm. Three-dimensional photomicrographs obtained via atomic force microscopy showed some aggregates in the suspensions.
CC 37-5 (**Plastics** Manufacture and Processing)
ST PEEK particle size supersatd soln; polyether polyketone semicryst suspension
IT Polyketones
Polyketones
RL: PRP (Properties)

(polyether-; preparation and properties of poly(ether ether ketone) powders)
IT Polyethers, properties
Polyethers, properties
RL: PRP (Properties)
(polyketone-; preparation and properties of poly(ether ether ketone) powders)
IT Crystallinity
Particle size
(preparation and properties of poly(ether ether ketone) powders)
IT **31694-16-3**, PEEK
RL: PRP (Properties)
(preparation and properties of poly(ether ether ketone) powders)
IT **31694-16-3**, PEEK
RL: PRP (Properties)
(preparation and properties of poly(ether ether ketone) powders)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



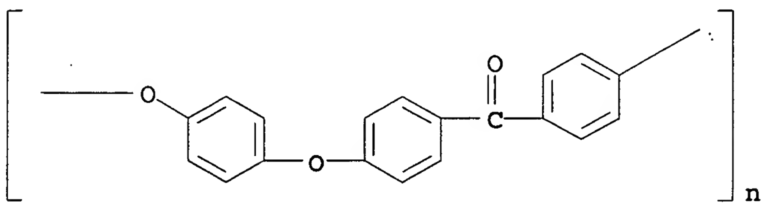
L39 ANSWER 33 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:60973 HCAPLUS
DN 126:75687
TI High-thermoconductive resins and films therefrom
IN Nakao, Ryuji
PA Otsuka Kagaku KK, Japan; Otsuka Chemical Holdings Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08283456	A	19961029	JP 1995-111342	19950410 <--
	JP 3512519	B2	20040329		
PRAI	JP 1995-111342		19950410 <--		

AB The title compns. contain thermoplastic resins and highly thermally conductive inorg. fibers and powder. Thus, a test piece containing PBT resin 60, AlN whiskers 30, and AlN powder 10 parts had thermocond. 3.78 W/m.k.
IC ICM C08K007-04
ICS C08J005-18; C08K003-00; C08K009-06; C08L101-00
CC 37-6 (**Plastics** Manufacture and Processing)
ST polyester aluminum nitride thermocond; inorg fiber polymer thermocond; powder inorg polymer thermocond
IT Crystal whiskers
(aluminum nitride; high-thermoconductive resins containing inorg. fibers and powder for films)
IT Synthetic fibers
RL: MOA (Modifier or additive use); USES (Uses)
(aluminum nitride; high-thermoconductive resins containing inorg. fibers

and powder for films)
IT Coupling agents
Thermal conductors
(high-thermoconductive resins containing inorg. fibers and powder for films)
IT Carbides
Carbon fibers, uses
Inorganic compounds
Metals, uses
Nitrides
Oxides (inorganic), uses
RL: MOA (Modifier or additive use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)
IT Plastic films
Polyesters, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)
IT Polyketones
Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; high-thermoconductive resins containing inorg. fibers and powder for films)
IT Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-; high-thermoconductive resins containing inorg. fibers and powder for films)
IT 1309-48-4, Magnesium oxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Pyrokisuma 5301; high-thermoconductive resins containing inorg. fibers and powder for films)
IT 12033-89-5, Silicon nitride, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(SNF 1; high-thermoconductive resins containing inorg. fibers and powder for films)
IT 409-21-2, Silicon carbide, uses 1314-13-2, Zinc oxide, uses 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 7782-40-3, Diamond, uses 12069-32-8, Boron carbide
RL: MOA (Modifier or additive use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)
IT 1344-28-1, Aluminum oxide (Al2O3), properties 7782-42-5, VGCF, properties 10043-11-5, Denka boron nitride GP, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)
IT 24968-12-5, PBT 26062-94-2 **31694-16-3**, Victrex PEEK 450G
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-thermoconductive resins containing inorg. **fibers** and **powder** for films)
IT 24304-00-5, Aluminum nitride
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(whiskers; high-thermoconductive resins containing inorg. fibers and powder for films)

IT 31694-16-3, Victrex PEEK 450G
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(high-thermoconductive resins containing inorg. fibers and powder for films)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 34 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1996:567083 HCAPLUS
DN 125:197506
TI Polyether-polyketone resin compositions and carriers for processing and treating semiconductor wafers
IN Kobayashi, Tadayasu; Asai, Kuniaki; Nomura, Hideo; Maeda, Mitsuo
PA Sumitomo Chemical Company, Limited, Japan
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 722985	A2	19960724	EP 1996-100659	19960117 <--
	EP 722985	A3	19971112		
	EP 722985	B1	20011024		
	R: DE, FR, GB, NL				
	JP 08253671	A	19961001	JP 1995-322756	19951212 <--
	JP 2798028	B2	19980917		
	US 5681888	A	19971028	US 1996-582340	19960119 <--
	CN 1138603	A	19961225	CN 1996-101810	19960120 <--
PRAI	JP 1995-7107	A	19950120 <--		

AB A polyether-polyketone resin composition comprises 5-100 parts of carbon fibers having an average fiber diameter of 5-20 .mu.m and an average fiber length of 30 -500 .mu.m per 100 parts of the composition, 50-95 weight% of a polyether-polyketone resin, and 5-50 weight% of a liquid crystalline polyester. The composition can be molded into a carrier with good stiffness, dimensional stability, and antistatic properties for processing or treating a semi-conductor wafer. One such composition contained 77 parts of Victrex PEEK (polyether-polyketone), 23 parts of a liquid crystalline polyester comprising residues from 4-hydroxybenzoic acid, 4,4'-dihydroxybiphenyl, terephthalic acid, and isophthalic acid in 60:20:15:5 ratio, and 15 parts of polyacrylonitrile-derived carbon fibers having an average diameter 6 .mu.m and average length 40-160 .mu.m and had mold shrinkage factor 0.60%, tensile strength 1380 kg/cm2, and flexural modulus 80000 kg/cm2.

IC ICM C08L071-00
ICS C08L067-00; C08K007-06; H01L021-30
ICI C08L071-00, C08L067-00; C08L067-00, C08L071-00
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **38**, 76
ST polyether polyketone polyester polyacrylonitrile blend; liq crystal polyester blend; carbon **fiber** polyacrylonitrile blend; semiconductor wafer carrier polyether polyketone
IT Liquid crystals, polymeric
Semiconductor materials
(polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT Acrylic **fibers**, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT Polyesters, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aromatic, liquid crystal; polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, aromatic, polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, aromatic, polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT 25014-41-9, Polyacrylonitrile
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**fiber**; polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT 60088-52-0, 4,4'-Dihydroxybiphenyl-4-hydroxybenzoic acid-isophthalic acid-terephthalic acid copolymer
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(liquid crystal; polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)
IT 31694-16-3, Victrex PEEK
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-polyketone resin compns. and carriers for processing and treating semiconductor wafers)

L39 ANSWER 35 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1996:410410 HCAPLUS
DN 125:60060
TI Plastic compositions for abrasion-resistant sliding parts with low friction coefficient
IN Saigo, Takaaki; Ueji, Yutaka; Sasa, Nobuhisa
PA Starlite Ind, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08092487	A	19960409	JP 1994-254733	19940922 <--
PRAI	JP 1994-254733		19940922 <--		

AB The title compns. comprise synthetic resins (e.g., polythiophenylenes, **PEEK**, polyacetal, polyamides, polyimides, polyimideamides, phenolic resins, epoxy resins) containing inorg. oxide particles with Mohs hardness 2.5-7 and diameter 0.1-**30** **.mu.m** (e.g., ZnO, SnO2, MgO, Cu2O, MnO2, SiO2) 0.25-10, solid lubricants (e.g., PTFE, graphite flakes, MoS2) 3-30, and optionally aromatic polyamide **fibers** 0-30 volume%.

IC ICM C08L101-00
ICS C08L101-00; C08K003-04; C08K003-30; C08K007-02

ICI C08L101-00, C08L027-18, C08L077-00

CC 37-6 (**Plastics** Manufacture and Processing)

ST polythiophenylene sliding part abrasion resistance; PEEK sliding part abrasion resistance; polyacetal sliding part abrasion resistance; polyamide sliding part abrasion resistance; polyimide sliding part abrasion resistance; phenolic resin sliding part abrasion resistance; epoxy sliding part abrasion resistance; oxide inorg powd sliding part; PTFE solid lubricant sliding part; graphite flake lubricant sliding part; molybdenum sulfide lubricant sliding part

IT Abrasion-resistant materials
(abrasion-resistant sliding parts with low friction coefficient)

IT Epoxy resins, properties
Phenolic resins, properties
Plastics, molded
Polyamides, properties
Polyimides, properties
Polyoxymethylenes, properties
Polythiophenylenes
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)

IT Oxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)

IT Polyamide **fibers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(isophthalic acid-m-phenylenediamine, abrasion-resistant sliding parts with low friction coefficient)

IT Polyimides, properties
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamide-, abrasion-resistant sliding parts with low friction coefficient)

IT Polyketones
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, abrasion-resistant sliding parts with low friction coefficient)

IT Polyamides, properties
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimide-, abrasion-resistant sliding parts with low friction coefficient)

IT Polyethers, properties
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, abrasion-resistant sliding parts with low friction coefficient)

IT Bearings

(sliding, abrasion-resistant sliding parts with low friction coefficient)
IT Lubricants
(solid, abrasion-resistant sliding parts with low friction coefficient)
IT 25212-74-2, Tohpren T 4 31694-16-3, Victrex PEEK 450P 108598-85-2, Milex XL 225M
RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)
IT 1309-48-4, Magnesium oxide, MgO, uses 1313-13-9, Manganese oxide, MnO2, uses 1314-13-2, Zinc oxide, ZnO, uses 1317-39-1, Copper oxide, Cu2O, uses 7631-86-9, Silica, uses 18282-10-5, Tin oxide, SnO2 24938-60-1, Conex
RL: MOA (Modifier or additive use); USES (Uses)
(abrasion-resistant sliding parts with low friction coefficient)
IT 1317-33-5, Molybdenum disulfide, MoS2, uses 7782-42-5, Graphite, uses 9002-84-0, KTL 610
RL: MOA (Modifier or additive use); USES (Uses)
(solid lubricants; abrasion-resistant sliding parts with low friction coefficient)

L39 ANSWER 36 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:895331 HCAPLUS
DN 124:57573
TI Thermal anisotropy of polymer carbon **fiber** composites as revealed by photodeflection methods
AU Bertolotti, M.; Ferrari, A.; Liakhou, G. L.; Li Voti, R.; Marras, A.; Ezquerra, T. A.; Balta-Calleja, F. J.
CS Dip. Energetica, Univ. Roma La Sapienza, Rome, 00161, Italy
SO Journal of Applied Physics (**1995**), 78(9), 5706-12
CODEN: JAPIAU; ISSN: 0021-8979
PB American Institute of Physics
DT Journal
LA English
AB The thermal diffusivity of carbon **fiber** composites was measured using different **fiber** types and polymer matrixes. A thermoplastic polyimide, **PEEK**, and PEKK resins with carbon **fibers** T800, AS-4, AS4-LDF, and the corresponding prepregs [62% carbon **fiber**] were studied. Photothermal testing was performed in the various directions parallel and perpendicular to the carbon **fiber** axis by different photothermal configurations. By focusing the laser beam with a spherical lens, local inhomogeneities of the composite surface in the range of **10 .mu.m** are distinguished. When focusing is done with the aid of a cylindrical lens, averaging over larger scales of the photothermal deflected signal takes place. The results for various carbon **fiber** materials are discussed in terms of thermal diffusion length and thermal diffusivity. The thermal photo-deflection method is suitable for measuring anisotropy in oriented carbon **fiber** composites.
CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 57
ST carbon **fiber** polymer composite thermal diffusivity; polyimide carbon **fiber** prepreg thermal anisotropy; polyetherketone carbon **fiber** photothermal testing
IT Polyimides, properties
RL: PRP (Properties)
(carbon **fiber** prepregs; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT Testing of materials
(photothermal; thermal diffusivity of carbon **fiber** - polymer

composites studied by photodeflection and photothermal methods)
IT Carbon **fibers**, properties
RL: PRP (Properties)
(polymer prepregs; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT Thermal conductivity and conduction
(thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT Anisotropy
(thermal diffusivity; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, carbon **fiber** prepregs; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, carbon **fiber** prepregs; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)
IT 31694-16-3, PEEK 54991-67-2, PEKK
RL: PRP (Properties)
(carbon **fiber** prepregs; thermal diffusivity of carbon **fiber** - polymer composites studied by photodeflection and photothermal methods)

L39 ANSWER 37 OF 56 HCAPLUS
AN 1995:615162 HCAPLUS
DN 123:11307
TI Polyketone-based microporous membranes with slit pores and their manufacture
IN Koyanagi, Seiya; Kawai, Yoshiho; Kamo, Jun
PA Mitsubishi Rayon Co, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07000776	A	19950106	JP 1993-146572	19930617 <--
PRAI	JP 1993-146572		19930617 <--		

AB The title membranes having slit pores of average width 0.01-**10** . **mu.m** are manufactured by spinning a mixture of 40-95% polyketones and 60-5% microparticles having diameter 0.02-**10** . **mu.m** and stretching the resulting spun products. Thus, melt spinning pellets containing 60 parts Victrex **PEEK** 150P and 40 parts crosslinked silicone microparticles (diameter 0.8 μm) using double-walled tubular nozzles at 400° and spitting speed of 10 cm/min while winding at 4 m/min and draft ratio of 40:1 gave hollow **fibers** which were stretched at 145° under a deformation speed of 10% per min to 300%. The final hollow **fibers** had outer diameter 800 μm, inner diameter 500 μm and slit pores with average width 0.6 μm and length 4 μm at void ratio 72%.
IC ICM B01D071-52
ICS C08G065-40
CC 38-3 (**Plastics** Fabrication and Uses)
ST polyketone polyether hollow **fiber** membrane; PEEK hollow **fiber** membrane; slit pore hollow **fiber** membrane

IT Silsesquioxanes
RL: MOA (Modifier or additive use); USES (Uses)
(Tospearl; polyketone-based microporous membranes with slit pores and manufacture)
IT Silsesquioxanes
RL: MOA (Modifier or additive use); USES (Uses)
(Me, polyketone-based microporous membranes with slit pores and manufacture)
IT Membranes
(hollow-**fiber**, polyketone-based microporous membranes with slit pores and manufacture)
IT Polyketones
RL: DEV (Device component use); USES (Uses)
(polyether-, polyketone-based microporous membranes with slit pores and manufacture)
IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyketone-, polyketone-based microporous membranes with slit pores and manufacture)
IT 27380-27-4, Victrex PEK 220P 31694-16-3
RL: DEV (Device component use); USES (Uses)
(polyketone-based microporous membranes with slit pores and manufacture)
IT 471-34-1, Calcium carbonate, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyketone-based microporous membranes with slit pores and manufacture)

L39 ANSWER 38 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:544369 HCAPLUS
DN 123:145858
TI A model for the consolidation of aligned thermoplastic powder impregnated composites
AU Connor, M.; Toll, S.; Manson, J.-A. E.; Gibson, A. G.
CS Laboratoire de Technologie des Composites et Polymeres, Ecole Polytechnique Federale de Lausanne, Lausanne, CH-1015, Switz.
SO Journal of Thermoplastic Composite Materials (**1995**), 8(April), 138-62
CODEN: JTMAEQ; ISSN: 0892-7057
DT Journal
LA English
AB The principal factors involved in the consolidation stage of processing powder-impregnated composites are described, placing in context the effects due to surface energy, viscous flow, externally applied pressure, and fiber bed elasticity. The effects are taken into account in a simple model which is shown to be capable of accurately describing the consolidation behavior under externally applied pressure. Consolidation expts. on powder-impregnated composites (thermoplastic-impregnated fibers) were carried out using a mold attached to a servo-hydraulic testing machine. The model accurately predicts variations in void content during consolidation of carbon fiber/PEEK (CF/PEEK) and carbon fiber/polyetherimide (CF/PEI) laminates. At the pressures needed to achieve rapid consolidation, surface energy has a negligible influence on impregnation rate, but its effects on the void topol. can be considerable. When laminates of low void content are required, a min. pressure is needed to overcome the effect of fiber bed elasticity.
CC 38-2 (**Plastics** Fabrication and Uses)
Section cross-reference(s): **37**
ST model consolidation powder impregnated composite; thermoplastic impregnated fiber composite consolidation
IT Carbon fibers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(thermoplastics reinforced by; model for consolidation of thermoplastic powder-impregnated composites) .

IT Plastics, reinforced
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(carbon fiber-, thermo-; model for consolidation of thermoplastic powder-impregnated composites)

IT Polyimides, uses
Polyketones
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)

IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyimide-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)

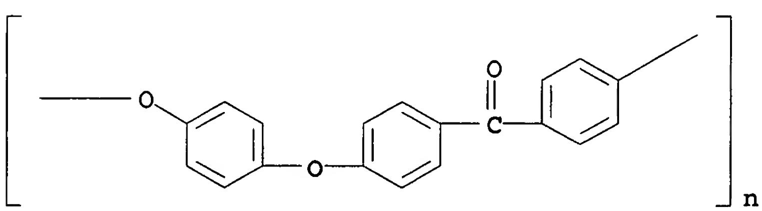
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyketone-, carbon fiber-reinforced; model for consolidation of thermoplastic powder-impregnated composites)

IT **31694-16-3**, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; model for consolidation of thermoplastic **powder**-impregnated composites)

IT **31694-16-3**, PEEK
RL: PEP (Physical, engineering or chemical process); **POF (Polymer in formulation)**; PRP (Properties); PROC (Process); USES (Uses)
(carbon **fiber**-reinforced; model for consolidation of thermoplastic **powder**-impregnated composites)

RN 31694-16-3 HCAPLUS

CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 39 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1995:368229 HCAPLUS

DN 123:57899

TI The influence of molding conditions on delamination behavior of carbon **fiber**/PEEK composites

AU Jar, P.-Y. B.; Kausch, H.-H.

CS Laboratoire de Polymeres, Ecole Polytechnique Federale de Lausanne, Lausanne, CH-1015, Switz.

SO Composites Science and Technology (**1994**), 52(3), 349-59
CODEN: CSTCEH; ISSN: 0266-3538

PB Elsevier

DT Journal

LA English
AB The effects of eight molding conditions on the mode I delamination resistance of carbon **fiber/PEEK** composite (APC2) are discussed. The molding conditions are different combinations of forming temperature (380°C and 400°C), forming pressure (0, 0.1 and 1.4 MPa) and cooling rate (0.5, 10 and 50 K min-1). The delamination resistance was evaluated by the determination of four types of GIC values, i.e. (i) GIC,Init, by using the point at the end of the linear part of the force/displacement curve, (ii) GIC,1mm, by using the point at which crack has travelled 1 mm from the starter film, (iii) GIC,5%, by using the point of the intersection between the force/displacement curve and a straight line with a 5% off-set of the initial compliance, and (i.v.) GIC,Prop, by using points during stable crack propagation. Results suggest that the GIC,Init value is most sensitive to the molding conditions and can be used to divide the specimens into three groups. The same division of specimens can also be made from SEM examination on the amount of drawn matrix adhering to the **fiber** surfaces, which implies that the GIC values at the beginning of crack growth are related to the bonding strength at the **fiber**/matrix interface. Comparison of GIC values among specimens with different cooling rates shows that the cooling rate affects GIC values in specimens formed at 400°C but not in specimens formed at 380°C, and that the cooling rate effect is significant only in GIC values measured during the initial crack growth from the starter film, i.e. GIC,Init, GIC,5% and GIC,1mm. Voids smaller than **100 . mu.m** in diameter were observed in specimens molded in simplified two-stage pressure processes which are commonly used for fabricating laminates in the study of cooling rate effects. The results from this study did not show any effect of voids on the measured values of GIC. This paper concludes that molding conditions can affect the delamination resistance of carbon **fiber/PEEK** composites, and supports the authors' previous results that the **fiber**/matrix interface bond strength affects delamination resistance during the initial crack growth from the starter film. The results from this paper also suggests that an increase in cooling rate decreases delamination resistance during the initial crack growth from the starter film, but such an effect is significant only in specimens formed at 400°C.
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): **37**
ST carbon **fiber** PEEK composite delamination; molding carbon **fiber** PEEK delamination
IT Molding of plastics and rubbers
(effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)
IT Carbon **fibers**, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)
IT Lamination
(de-, effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)
IT Polyketones
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, aromatic, effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)
IT Polyethers, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(polyketone-, aromatic, effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)

IT 31694-16-3, PEEK
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(effect of molding conditions on delamination behavior of carbon **fiber**/PEEK composites)

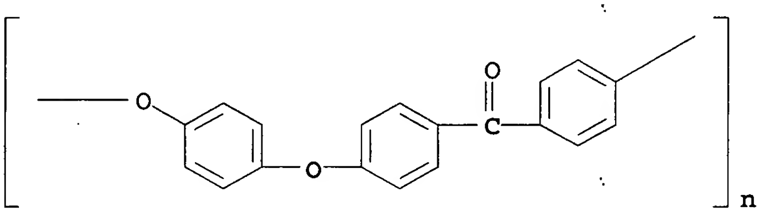
L39 ANSWER 40 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:276999 HCAPLUS
DN 122:32948
TI Low-density thermoplastic foamed articles with high strength and one-pot process for making them
IN Perman, Craig A.; Hendrickson, William A.; Riechert, Manfred E.
PA Minnesota Mining and Manufacturing Co., USA
SO Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 610953	A1	19940817	EP 1994-102162	19940211 <--
	EP 610953	B1	20030604		
	R: DE, FR, GB, IT				
	CA 2115123	A1	19940812	CA 1994-2115123	19940207 <--
	JP 06322168	A	19941122	JP 1994-16199	19940210 <--
	JP 3544556	B2	20040721		
PRAI	US 1993-16602	A	19930211 <--		
	US 1994-181696	A	19940125 <--		

AB The foamed thermoplastic articles, both filled and unfilled, have foamed d. ≥0.03 g/cm3 and cell **size** 10-300 **.mu .m** with cell wall thickness 0.1-2 μm. The one-pot process involves (a) charging a pressure vessel with a solid thermoplastic polymer; (b) heating to a predetd. saturation temperature at or near the polymer Vicat softening point using an external heat source; (c) simultaneously charging a gas while heating the pressure vessel; (d) equilibrating the pressure vessel, the thermoplastic polymer, and the gas with the heat source temperature; (e) adjusting the pressure by adding addnl. gas to achieve a final pressure such that the gas is in a supercrit. fluid state and soluble in the thermoplastic polymer; (f) saturating the thermoplastic polymer for a predetd. period of time; and (g) venting rapidly to depressurize the pressure vessel. Polystyrene test pieces were foamed using CO2 as the supercrit. fluid.
IC ICM C08J009-18
CC 37-6 (**Plastics** Manufacture and Processing)
ST thermoplastic foamed article density strength; polystyrene foam supercrit carbon dioxide
IT Plastics, molded
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(cellular; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Fluoropolymers
Plastics, cellular
Polycarbonates, properties
Urethane polymers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

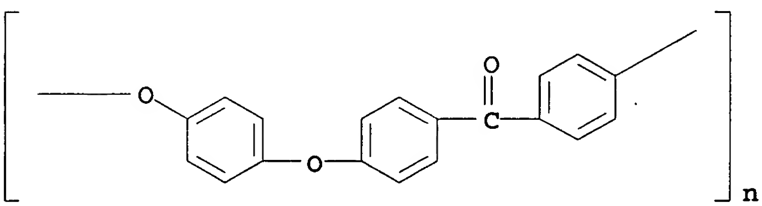
PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Blowing agents
(supercrit. gas; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Polyimides, properties
Polyketones
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polyether-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polyimide-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Polyethers, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polyketone-, low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT Alkenes, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(α-, polymers, with ethylene; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 9011-14-7, PMMA
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(Perspex; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 9002-88-4, Polyethylene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(**fibers**; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 74-85-1D, Ethylene, polymers with α-alkenes 9003-53-6, Polystyrene 9003-56-9, ABS polymer 9004-48-2, Cellulose propionate 9012-09-3, Cellulose triacetate 25038-71-5, Ethylene-tetrafluoroethylene copolymer **31694-16-3**, Victrex 150G 61128-24-3, Ultem 1000 141443-45-0, Aspun 6806
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 9002-86-2, PVC
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 9003-07-0, Polypropylene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polybutylene blend films; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT 9003-29-6, Polybutene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(polypropylene blend films; low-d. thermoplastic foamed articles with

high strength and one-pot process for their manufacture)
IT 74-82-8, Methane, uses 74-84-0, Ethane, uses 74-85-1, Ethylene, uses 75-38-7, 1,1-Difluoroethylene 75-46-7, Trifluoromethane 75-73-0, Tetrafluoromethane 76-16-4, Perfluoroethane 116-14-3, Tetrafluoroethylene, uses 124-38-9, Carbon dioxide, uses 10024-97-2, Nitrous oxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(supercrit., blowing agent; low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
IT **31694-16-3**, Victrex 150G
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(low-d. thermoplastic foamed articles with high strength and one-pot process for their manufacture)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 41 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:25882 HCAPLUS
DN 122:134607
TI The influence of the thermal treatment on the fatigue behavior of APC-2
AU Tregub, A.; Harel, H.; Migliaresi, C.; Marom, G.
CS Grad. Sch. Applied Sci. Technol., Hebrew Univ., Jerusalem, 91904, Israel
SO Proc. Int. Conf. Compos. Mater., 9th (**1993**), Volume 5, 677-83.
Editor(s): Miravete, Antonio. Publisher: Univ. Zaragoza, Zaragoza, Spain.
CODEN: 60GKA2
DT Conference
LA English
AB The effect of thermal treatment on the morphol. and mech. static and fatigue behavior in the flexural deformation mode of carbon fiber-reinforced PEEK (APC-2) composites was studied. The thermal treatment consisted of melting followed by cooling to the isothermal crystallization temperature or fast cooling in ice water and annealing, or fast cooling
alone. Whereas the thermal treatment affected both the matrix morphol. and the mech. properties., the resultant degree of crystallinity did not change. This effect was attributed to change in **spherulite** size and transcrystallinity.
CC 37-5 (**Plastics** Manufacture and Processing)
ST PEEK carbon composite thermal treatment; morphol PEEK carbon composite; mech property PEEK carbon composite; crystallinity PEEK carbon composite
IT Carbon fibers, properties
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)
IT Polymer morphology
(crystalline, effect of thermal treatment on morphol. and mech. behavior of

carbon fiber-reinforced PEEK composites)
IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-, effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)
IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyketone-, effect of thermal treatment on morphol. and mech. behavior of carbon fiber-reinforced PEEK composites)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon **fiber**-reinforced PEEK composites)
IT **31694-16-3**, PEEK
RL: **POF (Polymer in formulation)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(effect of thermal treatment on morphol. and mech. behavior of carbon **fiber**-reinforced PEEK composites)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 42 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:702236 HCAPLUS
DN 121:302236
TI Wear-resistant solid fluoropolymer composition and process
IN Davies, Mark; Hatton, Paul Martin
PA Imperial Chemical Industries PLC, UK
SO PCT Int. Appl., 15 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 9405728	A1	19940317	WO 1993-GB1690	19930810	<--
	W: JP, US					
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
	EP 611384	A1	19940824	EP 1994-908845	19930810	<--
	EP 611384	B1	19991201			
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE					
	JP 07500869	T	19950126	JP 1993-506947	19930810	<--
	AT 187189	T	19991215	AT 1994-908845	19930810	<--
	ES 2139068	T3	20000201	ES 1994-908845	19930810	<--
	US 5710205	A	19980120	US 1996-618391	19960319	<--
	GR 3032590	T3	20000531	GR 2000-400285	20000204	<--

PRAI GB 1992-19140 A 19920910 <--
WO 1993-GB1690 W 19930810 <--
US 1994-240749 B1 19940812 <--

AB A title composition which has an extremely low coefficient of friction in dry sliding contact with metal, without the application of addnl. fluid lubricant, comprises: (A) a fluoropolymer, e.g., tetrafluoroethylene (TFE) homo- and copolymers, (B) a poly(arylene sulfide) and (C) another high aromatic polymer, e.g., a polyimide, polyetherimide, or poly(arylene ether ether ketone). The components are present in the composition as particulate fillers (**particles** mean **size 20-50 .mu.m**) in a sintered or melted fluoropolymer matrix and the compns. are prepared by dry blending the components as particulates and, optionally heat-treating the component (C) and then heating the blend to a temperature sufficient to sinter or melt the component (A).

IC ICM C08L027-12
ICS C08L081-02; C08L101-00

ICI C08L027-12, C08L081-02, C08L101-00

CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 40

ST fluoropolymer polyarylene sulfide arom polymer blend; Ryton PTFE polyimide blend wear resistance; friction PTFE Ryton polyimide **fiber** blend

IT Abrasion-resistant materials
(wear-resistant solid fluoropolymer composition and process)

IT Fluoropolymers
Polythiophenylenes
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(wear-resistant solid fluoropolymer composition and process)

IT Polyimides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(**fiber**, wear-resistant solid fluoropolymer composition and process)

IT Polyketones
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-, **fiber**, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

IT Synthetic **fibers**, polymeric
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-polyketones, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

IT Synthetic **fibers**, polymeric
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimides, wear-resistant solid fluoropolymer composition and process)

IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyketone-, **fiber**, Victrex 150P; wear-resistant solid fluoropolymer composition and process)

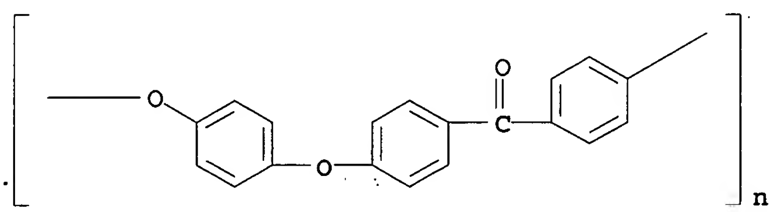
IT Plastics, molded
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(thermo-, wear-resistant solid fluoropolymer composition and process)

IT **31694-16-3**, Victrex 150P
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(**fiber**; wear-resistant solid fluoropolymer composition and process)

IT 9002-84-0, Fluon G 163 25212-74-2, Poly(thio-1,4-phenylene)
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(wear-resistant solid fluoropolymer composition and process)

IT **31694-16-3**, Victrex 150P
RL: **POF (Polymer in formulation)**; PRP (Properties); USES (Uses)
(**fiber**; wear-resistant solid fluoropolymer composition and process)

RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 43 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:458591 HCAPLUS
DN 121:58591
TI Effect of testing conditions on friction and wear of a polyetheretherketone-based composite
AU Guo, Qiang; Friedrich, Klaus
CS Shanghai Res. Inst. Mater., Shanghai, Peop. Rep. China
SO Synthetic Lubrication (**1993**), 10(3), 213-24
CODEN: SYLUEB; ISSN: 0265-6582
DT Journal
LA English
AB Friction and wear characteristics of a type of poly(ether ether ketone) (**PEEK**)-based composite were evaluated under 2 different loading pressures and sliding speeds (P = 1.0 MPa, V = 1.0 m/s and P = 2.0 Mpa, V = 3.3 m/s). The material was in contact with steel surfaces of 2 different roughnesses (Ra = **0.15 .mu.m** and Ra = 0.33 μm). The interface temperature, coefficient of friction, depth wear rate, and specific wear rate of the polymer composite changed considerably with the PV value and the counterface roughness. The interface temperature increased with increasing PV value, whereas the friction coefficient decreased. The depth wear rate at the higher PV value was much higher than that at the lower PV value. In addition, the rougher counterface resulted in a higher friction coefficient, depth wear rate, and specific wear rate, when the PV value was fixed. The effect of counterface roughness on the specific wear rate at the higher PV value was smaller than that at the lower PV. Further variations in friction and wear with testing conditions are discussed along with the corresponding microscopic observations of the worn polymer surfaces and the polymer transferred counterfaces.
CC 37-5 (**Plastics** Manufacture and Processing)
ST polyether polyketone composite friction wear; PEEK composite friction wear
IT Carbon **fibers**, properties
RL: PRP (Properties)
(friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)
IT Polyketones
RL: PRP (Properties)
(polyether-, composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)
IT Friction
(wear, of polyimide composites, effect of loading pressure, sliding speed and steel counterface roughness on)

IT 7440-44-0
RL: PRP (Properties)
(carbon **fibers**, friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)
IT 31694-16-3, PEEK
RL: PRP (Properties)
(composites, friction and wear of, effect of loading pressure, sliding speed and steel counterface roughness on)
IT 7782-42-5, Graphite, properties 9002-84-0, Poly(tetrafluoroethylene)
RL: PRP (Properties)
(friction and wear of PEEK composites containing, effect of loading pressure, sliding speed and steel surface roughness on)
IT 12725-40-5, 100 Cr6
RL: PRP (Properties)
(friction and wear of PEEK composites in contact with, effect of loading pressure, sliding speed and steel surface roughness on)

L39 ANSWER 44 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:246495 HCAPLUS
DN 120:246495
TI Application of scanning acoustic microscopy to polymeric materials
AU Lisy, F.; Hiltner, A.; Baer, E.; Katz, J. L.; Meunier, A.
CS Dep. Macromolecular Sci., Case Western Reserve Univ., Cleveland, OH, 44106, USA
SO Journal of Applied Polymer Science (**1994**), 52(2), 329-52
CODEN: JAPNAB; ISSN: 0021-8995
DT Journal
LA English
AB Scanning acoustic microscopy (SAM) is now a viable technique for the nondestructive evaluation of various materials. SAM is capable of distinguishing defects and discontinuities and/or the variations in elastic properties on a scale comparable to optical microscopy. The pulse model utilizes a single narrow acoustic wave that permits surface and internal studies over a range of frequencies from 5 to 200 MHz with resolution down to approx. **20 .mu.m.** This technique was applied to image surface features of an opaque sheet-molding compound and to analyze flow patterns of chopped glass **fibers.** The pulse mode was also used to image the internal damage sustained from a high-speed projectile in oriented polypropylene and two carbon **fiber**-reinforced composites, with different matrixes. Most importantly, the pulse mode of the acoustic microscopy is a nondestructive method and the interior of samples that are entirely opaque can be readily studied with this unique instrument. The burst mode is composed of a group of acoustic waves and is capable of operating at higher frequencies than the pulse mode up to several gigahertz. This mode permits resolution down to the micrometer level and is especially useful for investigating surface and subsurface microstructural features. The burst mode was used to determine the distribution of chopped **fibers** in a **PEEK** matrix and carbon black particulates in an adhesive, the orientation of the mineral phase and d. variations in a single osteon from a dog femur, and the orientation of collagen **fibers** in a sheep meniscus. Also, the sensitivity of the burst mode to surface features was used to examine the topog. features in a multilayer composite and a blend of poly(vinyl chloride) (PVC) with poly(ethylene terephthalate) (PET) particulates.
CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 13, 26, **36**, 45
ST scanning acoustic microscopy filled polymer; defect plastic scanning acoustic microscopy; topol plastic scanning acoustic microscopy; glass **fiber** plastic scanning acoustic microscopy; polypropylene carbon

fiber scanning acoustic microscopy; PEEK carbon black scanning acoustic microscopy; multilayer polymer composite scanning acoustic microscopy; PVC PET blend scanning acoustic microscopy; polyester PVC blend scanning acoustic microscopy; biopolymer structure scanning acoustic microscopy; osteon structure scanning acoustic microscopy; collagen structure scanning acoustic microscopy

IT Carbon **fibers**, properties
RL: PRP (Properties)
(PEEK filled with, topol. features and defects in, scanning acoustic microscopy in study of)

IT Polycarbonates, properties
RL: PRP (Properties)
(acrylonitrile-styrene copolymer blends, multilayer composites, topol. features and defects in, scanning acoustic microscopy in study of)

IT Rubber, synthetic
RL: PRP (Properties)
(adhesives, filled with carbon black, topol. features and defects in, scanning acoustic microscopy in study of)

IT Polymer morphology
(of polymeric materials, scanning acoustic microscopy in study of)

IT Plastics
RL: PRP (Properties)
(polyester-PVC blends, topol. features and defects in, scanning acoustic microscopy in study of)

IT Carbon black, properties
RL: PRP (Properties)
(rubber adhesives filled with, topol. features and defects in, scanning acoustic microscopy in study of)

IT Adhesives
(rubber-based, filled with carbon black, topol. features and defects in, scanning acoustic microscopy in study of)

IT Collagens, properties
RL: PRP (Properties)
(topol. features and defects in, scanning acoustic microscopy in study of)

IT Glass **fibers**, properties
RL: PRP (Properties)
(vinyl ester resin filled with, topol. features and defects in, scanning acoustic microscopy in study of)

IT Microscopy
(acoustic, scanning, of polymeric materials)

IT Vinyl compounds, polymers
RL: PRP (Properties)
(ester group-containing, polymers, glass **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)

IT Bone
(osteon, topol. features and defects in, scanning acoustic microscopy in study of)

IT Polyketones
RL: PRP (Properties)
(polyether-, carbon **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)

IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, carbon **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)

IT 25038-59-9, Poly(ethylene terephthalate), properties
RL: PRP (Properties)
(PVC blends, topol. features and defects in, scanning acoustic microscopy in study of)

IT 31694-16-3, PEEK
RL: PRP (Properties)
(carbon **fiber**-filled, topol. features and defects in, scanning acoustic microscopy in study of)
IT 7440-44-0
RL: PRP (Properties)
(carbon **fibers**, PEEK filled with, topol. features and defects in, scanning acoustic microscopy in study of)
IT 9003-54-7, Acrylonitrile-styrene copolymer
RL: PRP (Properties)
(polycarbonate blends, multilayer composites, topol. features and defects in, scanning acoustic microscopy in study of)
IT 9002-86-2, PVC
RL: PRP (Properties)
(polyester blends, topol. features and defects in, scanning acoustic microscopy in study of)
IT 9003-07-0, Polypropylene
RL: PRP (Properties)
(topol. features and defects in, scanning acoustic microscopy in study of)

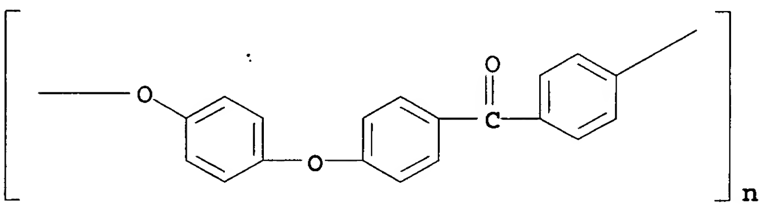
L39 ANSWER 45 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:497430 HCAPLUS
DN 119:97430
TI Flexible multi-ply towpreg, products therefrom, and production therefor
IN Muzzy, John D.; Colton, Jonathan S.; Varughese, Babu
PA Georgia Tech Research Corp., USA
SO PCT Int. Appl., 79 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 9220521	A1	19921126	WO 1992-US1870	19920309	<--
	W: CA, JP					
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE					
	US 5171630	A	19921215	US 1991-700559	19910515	<--
	US 5296064	A	19940322	US 1992-848297	19920309	<--
	EP 589925	A1	19940406	EP 1992-911213	19920309	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE					
	JP 06510954	T	19941208	JP 1992-510841	19920309	<--
PRAI	US 1991-700559	A	19910515	<--		
	US 1989-339297	A3	19890417	<--		
	WO 1992-US1870	W	19920309	<--		

AB Improved flexible multi-ply towpreg suitable for weaving, braiding, filament winding, etc., comprises a plurality of towpreg ties (average thickness <**100 .mu.m**) consisting of reinforcing filaments (glass, carbon, metal, ceramic, or hybrid **fibers**) and (thermo)plastic resin, copper, low-melting metal, or precursor ceramic matrix. The towpreg is manufactured by spreading the reinforcing filaments, coating (preferably powder spray or electrostatic fluidized bed) and wetting with a liquefied matrix material, cooling with preventing cohesion of the neighboring plies, splitting the coated filaments from each other, and forming a fusion-coated towpreg tape under pressure. Thus, 60% (by volume) of **PEEK** 150 PF (polyetheretherketone powder) was electrodeposited on Hercules AS 4-6K (C **fiber**) tow (8-μm diameter filaments), then passed (6.8 m/min) through a tubular oven at 450°, and cooled to give a consolidated towpreg with an estimated stiffness of 216,000 mg/cm. Schematic illustrations

of the product and the manufacturing apparatus are given.
IC ICM B32B005-06
ICS B32B017-04
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 42
ST carbon **fiber** towpreg tape manuf; PEEK powder graphite **fiber** towpreg; electrodeposition PEEK carbon **fiber** towpreg; polyetheretherketone electrodeposition carbon **fiber** towpreg
IT Carbon **fibers**, uses
Glass **fibers**, uses
Metallic **fibers**
RL: USES (Uses)
(flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT Polyimides, uses
RL: USES (Uses)
(flexible **fiber**-reinforced towpreg composites from, manufacture of)
IT Polyamide **fibers**, uses
RL: USES (Uses)
(aramid, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT Synthetic **fibers**
RL: USES (Uses)
(ceramic, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT Plastics, reinforced
RL: USES (Uses)
(**fiber**-, flexible towpreg composites, manufacture of)
IT Ceramic materials and wares
RL: USES (Uses)
(**fibers**, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT Carbon **fibers**, uses
RL: USES (Uses)
(graphite, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT Textiles
(nonwoven, flexible towpreg composites for, manufacture of)
IT Polyketones
RL: USES (Uses)
(polyether-, flexible **fiber**-reinforced towpreg composites from, manufacture of)
IT Polyethers, uses
RL: USES (Uses)
(polyketone-, flexible **fiber**-reinforced towpreg composites from, manufacture of)
IT Plastics
RL: USES (Uses)
(thermo-, flexible **fiber**-reinforced towpreg composites from virgin or recycled, manufacture of)
IT 7440-44-0P
RL: PREP (Preparation)
(carbon **fibers**, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture of)
IT 7440-44-0P 7782-42-5P
RL: PREP (Preparation)
(carbon **fibers**, graphite, flexible **fiber**-reinforced towpreg composites from polyetheretherketone or polyimide and, manufacture

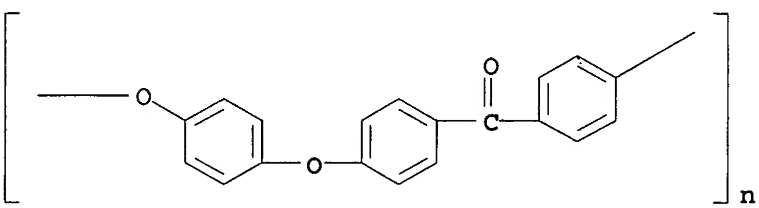
of)
IT 51518-44-6P, LARC-TPI
RL: PREP (Preparation)
(flexible towpreg composite from carbon **fiber** and, manufacture of)
IT **31694-16-3P**, Victrex 150P-F
RL: **PREP (Preparation)**
(flexible towpreg composite from carbon or glass **fiber** and, manufacture of)
IT **31694-16-3P**, Victrex 150P-F
RL: **PREP (Preparation)**
(flexible towpreg composite from carbon or glass **fiber** and, manufacture of)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 46 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1992:592800 HCAPLUS
DN 117:192800
TI Novel synthesis of small semicrystalline PEEK particles and carbon fiber composites fabricated via powder prepregging
AU Lyon, K. R.; Texier, A.; Gungor, A.; Davis, R. M.; McGrath, J. E.
CS Natl. Sci. Found. Sci. Technol. Cent., Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, 24061-0212, USA
SO International SAMPE Symposium and Exhibition **(1992)**, 37(Mater. Work. You 21st Century), 1301-11
CODEN: ISSEEG; ISSN: 0891-0138
DT Journal
LA English
AB Defect-free semicryst. poly(arylene ether ketones) (PAEK) were synthesized in high yield at moderate temps. (e.g. 150°) via ketimine intermediates. Ketimine derivatization of the activated halide prior to polymerization was achieved via mol. sieve-catalyzed reactions with aniline. The ketimine derivative activated the halide monomer to nucleophilic aromatic substitution step polymerization and produced an amorphous macromol. of controlled mol. weight The protecting groups could be selectively removed under mildly acidic aqueous conditions after the polymerization yielding the semicryst. PAEK. On transformation from the amorphous ketimine derivative to that of the semicryst. polymer, the polymer precipitated due to its crystallinity and could be induced to generate small particulate forms. The particle sizes (0.5-5 μm) could be controlled by selecting proper hydrolysis conditions. Carbon fiber composites were fabricated via aqueous powder prepregging using polyamic acids as stabilizers. Mech. properties were essentially equivalent to those of com. available systems. Procedures developed for particle formation and size control were discussed.
CC 37-3 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **35**

ST arom polyether polyketone defect free; polymn ketimine arom polyether polyketone; carbon fiber PEEK composite powder prepregging
IT Carbon fibers, miscellaneous
RL: MSC (Miscellaneous)
(composites with semicryst. poly(arylene ether ketones), fabrication of, via powder prepregging)
IT Polymerization
(of hydroquinone with aromatic ketimine, in preparation of semicryst. PEEK)
IT Dispersing agents
(polyimides, in fabrication of carbon fiber-PEEK composites via powder prepregging, composite mech. properties in relation to)
IT Polyamic acids
Polyimides, uses
RL: USES (Uses)
(stabilizers, in fabrication of carbon fiber-PEEK composites via powder prepregging, composite mech. properties in relation to)
IT Polymer morphology
(fracture-surface, of semicryst. PEEK particles prepared via ketimine intermediates)
IT Polyketones
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyether-, aromatic, preparation of semicryst., via ketimine intermediates,
for fabrication of carbon fiber composites by powder prepregging)
IT Polyketones
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polyether-, aromatic, ketimine-containing, preparation and hydrolytic cleavage
reaction of)
IT Polyethers, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(polyketone-, aromatic, preparation of semicryst., via ketimine intermediates,
for fabrication of carbon fiber composites by powder prepregging)
IT Polyethers, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(polyketone-, aromatic, ketimine-containing, preparation and hydrolytic cleavage
reaction of)
IT 7440-44-0
RL: USES (Uses)
(carbon fibers, composites with semicryst. poly(arylene ether ketones), fabrication of, via powder prepregging)
IT 109997-75-3P 110018-28-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and cleavage reaction of)
IT 109997-74-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and polycondensation of, with hydroquinone)
IT **31694-16-3P** 109997-75-3DP, hydrolyzed, ketimine cleavage products 110018-28-5DP, hydrolyzed, ketimine cleavage products
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of semicryst., for fabrication of carbon **fiber** composites via **powder** prepregging)
IT 345-92-6, 4,4'-Difluorobenzophenone
RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with aniline)
IT 62-53-3, Aniline, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with difluorobenzophenone)
IT 51518-44-6, LARC-TPI
RL: USES (Uses)
(stabilizers, in fabrication of carbon fiber-PEEK composites via powder prepregging, composite mech. properties in relation to)
IT **31694-16-3P**
RL: SPN (Synthetic preparation); **PREP (Preparation)**
(preparation of semicryst., for fabrication of carbon **fiber** composites via **powder** prepregging)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 47 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1992:573071 HCAPLUS
DN 117:173071
TI Fused prepreg production.
IN Hartness, J. Timothy
PA USA
SO Can. Pat. Appl., 29 pp.
CODEN: CPXXEB
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	CA 2041515	A1	19911031	CA 1991-2041515	19910430	<--
PRAI	US 1990-516653	A	19900430	<--		

AB Flexible drapeable prepregs (towpregs) containing fused thermoplastic particles are prepared by spraying dispersions of plastic particles on **fibers**, fusing at high temps, and reconsolidating the spread tow. Thus, carbon **fibers** (3.5-cm width) were coated with **15** % aqueous slurries of **PEEK** (particle size 17 **.mu.m**) at line speed 6.9 m/min, fused at 466°, and reconsolidated to give a towpreg with good flexibility. Molding the towpreg at 415°/200 psi gave a composite with **fiber** content 57%, voids 0.0%, and tensile strength 11.96 kpsi.
IC ICM C08J005-04
ICS C08J005-24; B29C067-14; B32B005-08; B32B027-04; D06M023-08
CC 38-3 (**Plastics** Fabrication and Uses)
ST prepreg flexible manuf; carbon **fiber** prepreg flexible; polyether polyketone prepreg flexible
IT Liquid crystals, polymeric
Polybenzimidazoles
Polyimides, uses
Polythiophenylenes

RL: USES (Uses)
(in flexible prepreg manufacture)
IT Carbon **fibers**, uses
Glass **fibers**, uses
RL: USES (Uses)
(in flexible prepregs)
IT Polyamides, uses
RL: USES (Uses)
(aliphatic, in flexible prepreg manufacture)
IT Polyamide **fibers**, uses
RL: USES (Uses)
(aramid, in flexible prepregs)
IT Plastics, reinforced
RL: USES (Uses)
(**fiber**-, prepregs, manufacture of flexible)
IT Polyketones
RL: USES (Uses)
(polyether-, aromatic, in flexible prepreg manufacture)
IT Polyethers, uses
RL: USES (Uses)
(polyketone-, aromatic, in flexible prepreg manufacture)
IT Polysulfones, uses
RL: USES (Uses)
(polyoxyarylene-, in flexible prepreg manufacture)
IT Polyoxyarylenes
RL: USES (Uses)
(polysulfone-, in flexible prepreg manufacture)
IT Synthetic **fibers**
RL: USES (Uses)
(quartz, in flexible prepregs)
IT Synthetic **fibers**
RL: USES (Uses)
(silicon carbide, in flexible prepregs)
IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, in flexible prepregs)
IT 409-21-2, Silicon carbide, uses 14808-60-7, Quartz, uses
RL: USES (Uses)
(**fiber**, in flexible prepregs)
IT 31694-16-3, PEEK
RL: USES (Uses)
(in flexible prepregs)

L39 ANSWER 48 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:681185 HCAPLUS
DN 115:281185
TI Studies on interface structure and crystal texture of poly(ether ether ketone)-carbon **fiber** composite
AU Wang, Wei; Qi, Zongneng; Jeronimidis, G.
CS Inst. Chem., Chin. Acad. Sci., Beijing, Peop. Rep. China
SO Journal of Materials Science (**1991**), 26(21), 5915-20
CODEN: JMTSAS; ISSN: 0022-2461
DT Journal
LA English
AB The interface structure of **PEEK**-carbon **fiber** composite and the crystal texture of **PEEK** matrix are studied by SEM after the samples were properly etched by argon plasma. Most of the **PEEK**'s crystals are induced by nucleating carbon **fiber** and then they developed the transcryst. or spherulite shape, depending on the crystallization conditions. Because the volume fraction of the carbon

fiber is 60%, and the space distance between 2 adjacent carbon
fibers is .apprx.**10** **.mu.m**-**20**
.mu.m, the crystal size of **PEEK** matrix is
mainly controlled by the space distance between adjacent carbon
fibers, and the crystallization temperature has little effect on it. The
detail
of the oriented crystal growth of the **PEEK** relative to carbon
fiber was first observed by SEM. The nucleation process of the
composite is as follows: the first lamella is formed orientationally in
the carbon **fiber** surface in the way that the a crystallog.
direction is parallel to the radial direction of carbon **fiber**,
the b direction parallel to the tangent line of cross section of carbon
fiber, and the c direction parallel to the axis of the carbon
fiber. Therefore, the crystals finally formed are oriented.

CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): **36**

ST interface structure PEEK carbon **fiber**; crystal texture PEEK
carbon **fiber**; cryst morphol PEEK carbon **fiber**

IT Carbon **fibers**, properties
RL: PRP (Properties)
(PEEK composites, interface structure and matrix crystal texture of,
SEM study of)

IT Spherulites
(growth of, of PEEK, in carbon **fiber** composites)

IT Crystal nucleation
(of PEEK, in carbon **fiber** composites, mechanism of)

IT Polymer morphology
(crystalline, spherulitic, of PEEK-carbon **fiber** composites, SEM
study of)

IT Polymer morphology
(interfacial, of PEEK-carbon **fiber** composites, SEM study of)

IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, crystal texture of neat and interface structure in
carbon **fiber** composites, SEM study of)

IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, crystal texture of neat and interface structure in
carbon **fiber** composites, SEM study of)

IT Crystallization
(spherulitic, of PEEK, in carbon **fiber** composites)

IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, PEEK composites, interface structure and
matrix crystal texture of, SEM study of)

IT 31694-16-3, PEEK
RL: USES (Uses)
(crystal texture of neat and interface structure in carbon
fiber composites, SEM study of)

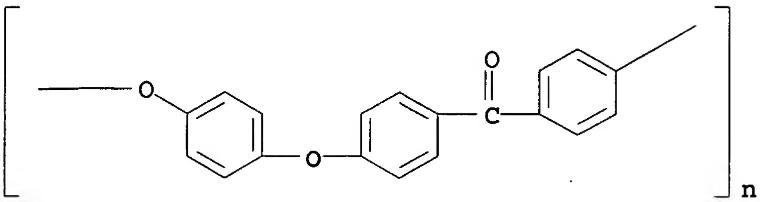
L39 ANSWER 49 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:585023 HCAPLUS
DN 115:185023
TI Extrusion sheets and electric insulation boards
IN Tanimoto, Kenichi; Ookubo, Makoto; Kamya, Kenji; Okumura, Shinji;
Nakayama, Yasuki
PA Unitika Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03151220	A	19910627	JP 1989-290452	19891108 <--
PRAI	JP 1989-290452		19891108 <--		

AB The smooth-surfaced title sheets, with low difference between the phys. properties in the machine direction and those in the transverse direction, comprise aromatic polyether ketones 100, fibrous reinforcement materials 2-50, and inorg. compds. (average **particle** diameter .ltoreq.**50 .mu.m**) 5-**50** parts, and are useful for forming sheets for elec. insulation boards by hot pressing. Thus, Victrex **PEEK 100**, glass **fibers** (diameter **15 .mu.m**) 25, and mica (average **particle** diameter **40 .mu.m**) were melt kneaded at 390°, pelletized, and extruded at 400°, and pressed at 250° and 40 kg/cm2 to give an elec. insulation board (degree of crystallization 30%) with longitudinal (transverse) bending strength 2300 (1800) kg/cm2, bending modulus 90,000 (75,000) kg/cm2, heat-distortion temperature 290°, soldering heat resistance (280°) 50 s, and good surface smoothness, vs. 1400 (1300), 38,000 (37,000), 160, 10, and good, resp., for a board prepared without mica and glass **fibers.**

IC ICM B29C047-00
ICS C08K007-02; C08L071-10; H01B003-30
ICI B29K071-00, B29K105-06
CC 38-3 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 76
ST reinforced filled polyether polyketone; glass **fiber** reinforced polyether polyketone; mica filled polyether polyketone; elec insulation board polyether polyketone
IT Mica-group minerals, uses and miscellaneous
RL: USES (Uses)
(aromatic polyester-polyketones containing glass **fibers** and, for elec. insulation boards)
IT Glass **fibers**, uses and miscellaneous
RL: USES (Uses)
(aromatic polyether-polyketones containing mica and, for elec. insulation boards)
IT Electric insulators and Dielectrics
(boards, polyether-polyketones, containing glass **fibers** and mica)
IT Polyketones
RL: USES (Uses)
(polyether-, aromatic, extrusion sheets, containing glass **fibers** and mica, for elec. insulation boards)
IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyketone-, aromatic, extrusion sheets, containing glass **fibers** and mica, for elec. insulation boards)
IT **31694-16-3**, Victrex PEEK
RL: USES (Uses)
(extrusion sheets, containing glass **fibers** and mica, for elec. insulation boards)
IT **31694-16-3**, Victrex PEEK
RL: USES (Uses)
(extrusion sheets, containing glass **fibers** and mica, for elec. insulation boards)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 50 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:537345 HCAPLUS
DN 115:137345
TI Effect of carbon **fibers** length on the low-temperature thermal conductivity of a thermoplastic composite
AU Nysten, B.; Jonas, A.; Issi, J. P.
CS Unite Phys. Chim. Phys. Mater., Univ. Cathol. Louvain, Louvain-la-Neuve, B-1348, Belg.
SO Thermal Conductivity (**1990**), 21, 647-60
CODEN: THCOD9; ISSN: 0163-9005
DT Journal
LA English
AB The temperature (T) variation of the thermal conductivity of a thermoplastic composite
was measured at 2 < T < 300 K. The samples were a high temperature thermoplastic matrix (**PEEK**) filled with constant volume fraction of 10% of pitch-derived carbon **fibers** whose average lengths ranged from **30 .mu.m** to 5 mm. The low-temperature (T < 20 K)
thermal conductivity which had the temperature dependence of a semicryst. polymer was
dominated by the matrix. At higher temps., the conductivity increased with **fiber** length and was tentatively modeled by contact resistance between the **fibers** and the polymer.
CC 37-5 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 69
ST carbon **fiber** PEEK thermal cond; **fiber** length composite thermal cond
IT Thermal conductivity and conduction
(low-temperature, of carbon **fiber**-PEEK composites, **fiber** length effect on)
IT Crystallinity
(of PEEK, low-temperature thermal conductivity of its composites with carbon **fibers** with various lengths in relation to)
IT Carbon **fibers**, properties
RL: PRP (Properties)
(pitch-based, PEEK composites, low-temperature thermal conductivity of, **fiber** length effect on)
IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)
IT 31694-16-3, PEEK
RL: USES (Uses)
(carbon **fiber** composites, low-temperature thermal conductivity of, **fiber** length effect on)

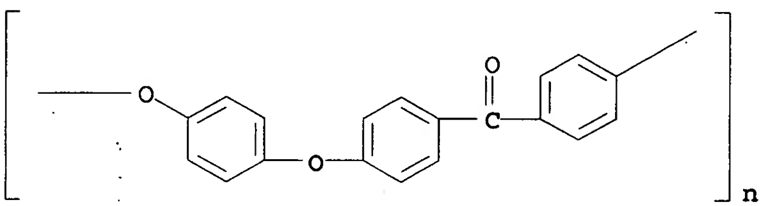
IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, pitch-based, PEEK composites, low-temperature thermal conductivity of, **fiber** length effect on)

L39 ANSWER 51 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:632936 HCAPLUS
DN 113:232936
TI Films, solid **fibers**, microporous film membranes, and microporous hollow-**fiber** membranes from PEEK solutions in high boiling point polar organic solvents
IN Chau, Chieh Chun; Wessling, Ritchie A.
PA Dow Chemical Co., USA
SO U.S., 12 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 4957817	A	19900918	US 1988-276006	19881125	<--
PRAI	US 1988-276006		19881125	<--		

AB Title products are prepared from solns. in organic polar solvents with b.p. 141-380°. Thus, casting a mixture of 1 part Victrex **PEEK** 380P and 6 parts benzophenone at 300° on a glass plate at 100-150°, cooling by air blower, separating the film from the plate, dipping the film 1 h in MeOH to remove the solvent, rinsing the dipped film with water, and drying gave a membrane with pore diameter on the glass plate side 1-4 μm and the other side 0.1-0.3 μm, that exhibited water permeability 0.12 mL/cm2-min-atm (3.6 mil thick) and retained 0.091 **.mu.m** polystyrene **particles** in **15%** polystyrene latex under 138 kP pressure.
IC ICM C08J009-28
INCL 428436000
CC 38-2 (**Plastics** Fabrication and Uses)
Section cross-reference(s): 40
ST PEEK microporous semipermeable membrane prepn; benzophenone soln PEEK microporous membrane; **fiber** hollow microporous membrane PEEK
IT Synthetic **fibers**, polymeric
RL: PREP (Preparation)
(PEEK, preparation of, from solns. in high-boiling polar solvents)
IT Solvents
(high-boiling, polar, PEEK solns. in, for preparation of membranes and **fibers**)
IT Membranes
(microporous, of PEEK, preparation of, from solns. in high-boiling organic polar solvents)
IT Membranes
(microporous, hollow-**fiber**, of PEEK, preparation of, from solns. in high-boiling organic polar solvents)
IT Polyketones
RL: PREP (Preparation)
(polyether-, microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)
IT Polyethers, uses and miscellaneous
RL: PREP (Preparation)
(polyketone-, microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)
IT **31694-16-3P**, Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene)

RL: **PREP (Preparation)**
(microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)
IT 90-13-1 90-43-7, [1,1'-Biphenyl]-2-ol 93-04-9 93-99-2, Phenyl benzoate 119-61-9, Benzophenone, uses and miscellaneous 120-47-8, Ethyl 4-hydroxybenzoate 127-63-9, Diphenylsulfone 131-11-3 771-61-9, Pentafluorophenol 6837-24-7, N-Cyclohexyl-2-pyrrolidone
RL: USES (Uses)
(solvents, PEEK solns. in, for preparation of **fibers** and membranes)
IT **31694-16-3P**, Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene)
RL: **PREP (Preparation)**
(microporous and nonporous membranes and **fibers**, preparation of, from solns. in high-boiling organic polar solvents)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 52 OF 56 HCAPLUS
AN 1990:593149 HCAPLUS
DN 113:193149
TI PEEK composites for wear-resistant automobile manual transmission shift fork claws
IN Kato, Shinji; Fuwa, Yoshio
PA Toyota Motor Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02190672	A	19900726	JP 1989-9161	19890118 <--
PRAI	JP 1989-9161		19890118 <--		

AB The claws, having **fiber** dispersion rate 5-35%, comprise mainly **PEEK** and **fibers** having average diameter 5-20 . **mu.m** and length 30-500 **.mu.m** , selected from glass, carbon, Kevlar, and steel **fibers.** A claw prepared from **PEEK** and glass **fibers** (dispersion rate 21%) had coefficient of friction 0.010 and wear 25 μm under 4800 rpm, 120°, and 100 kg loading for 30,000 cycles (rotation for 1 s and stop for 1.5 s).
IC ICM F16H063-32
ICS C08L071-10
CC 38-3 (**Plastics** Fabrication and Uses)
ST wear resistance glass **fiber** PEEK composite; automobile manual transmission shift claw
IT Crystal whiskers

Carbon **fibers**, uses and miscellaneous
Glass **fibers**, uses and miscellaneous
RL: USES (Uses)
(PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)
IT Polyimides, uses and miscellaneous
RL: USES (Uses)
(**fiber**-containing PEEK blends with, wear-resistant, for automobile shift fork claws)
IT Abrasion-resistant materials
(**fiber**-reinforced PEEK, for automobile transmission shift fork claws)
IT Polyamide **fibers**, uses and miscellaneous
RL: USES (Uses)
(aramid, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)
IT Transmissions
(automotive, manual, shift fork claws for, wear-resistant **fiber** -reinforced PEEK for)
IT Metallic **fibers**
RL: USES (Uses)
(brass, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)
IT Metallic **fibers**
RL: USES (Uses)
(steel, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)
IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, PEEK containing, for automobile manual transmission shift fork claws, wear-resistant)
IT 31694-16-3, PEEK
RL: USES (Uses)
(**fiber**-containing, wear-resistant, for automobile shift fork claws)

L39 ANSWER 53 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:479635 HCAPLUS
DN 113:79635
TI Processing, microstructure, and failure behavior in short-**fiber** -reinforced poly(ether ether ketone) composites
AU Wu, Gwo Mei; Schultz, J. M.
CS Coll. Eng., Univ. Delaware, Newark, DE, 19716, USA
SO Polymer Composites (**1990**), 11(2), 126-32
CODEN: PCOMDI; ISSN: 0272-8397
DT Journal
LA English
AB Short-glass-**fiber**-reinforced **PEEK** composites were prepared in a specially designed mold. Both compression- and extrusion-molded plaques were obtained under the same thermal history. The **fiber** length distribution (≤600 μm), volume fraction (**20%**), and orientation were characterized. The **fibers** showed an in-plane random orientation in the compression-molded plaques, but they exhibited a 3-layer **fiber** orientation well known for injection moldings in the extrusion-molded composites. Static compact tension specimens and electron microscopy were used to investigate the failure behavior. Crack initiation was the dominant failure energy absorption process in brittle fracture, whereas crack propagation was dominant in ductile failure. The extruded composites were mech. characterized in two orthogonal directions

(T- and L-type). The anisotropy factor was 1.2.
CC 37-5 (**Plastics** Manufacture and Processing)
ST **fiber** reinforced PEEK processing property; polyether polyketone glass reinforced
IT Glass **fibers**, uses and miscellaneous
RL: USES (Uses)
(PEEK reinforced with, processing, microstructure and failure behavior of)
IT Extrusion of plastics and rubbers
(of glass **fiber**-reinforced PEEK composites, microstructure and failure behavior in relation to)
IT Molding of plastics and rubbers
(compression, of glass **fiber**-reinforced PEEK composites, microstructure and failure behavior in relation to)
IT Polymer morphology
(fracture-surface, of glass **fiber**-reinforced PEEK composites)
IT Polyketones
RL: PRP (Properties)
(polyether-, aromatic, glass **fiber**-reinforced, processing, microstructure and failure behavior of)
IT Polyethers, properties
RL: PRP (Properties)
(polyketone-, aromatic, glass **fiber**-reinforced, processing, microstructure and failure behavior of)
IT 31694-16-3, PEEK
RL: USES (Uses)
(glass **fiber**-reinforced, processing, microstructure and failure behavior of)

L39 ANSWER 54 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1989:634633 HCAPLUS
DN 111:234633
TI **Fiber**-reinforced thermoplastic laminates
IN Cogswell, Frederic Neil; Meakin, Peter James
PA Imperial Chemical Industries PLC, UK
SO Eur. Pat. Appl., 10 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 320155	A2	19890614	EP 1988-311229	19881128 <--
	EP 320155	A3	19920212		
	R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
	US 5066536	A	19911119	US 1988-280355	19881206 <--
	AU 8826767	A	19890615	AU 1988-26767	19881209 <--
	AU 609550	B2	19910502		
	BR 8806508	A	19890822	BR 1988-6508	19881209 <--
	CA 1313345	C	19930202	CA 1988-585674	19881212 <--
PRAI	GB 1987-28887	A	19871210 <--		

AB Laminates comprise a **fiber**-reinforced polymer composite having **fiber** content ≥50% and **fiber** length >3 mm and a layer selected from a crystalline polymer having m.p. ≥10° below the 1st layer polymer, an amorphous polymer having glass transition temperature (Tg) ≥10° below the m.p. of the 1st layer polymer, and an amorphous polymer which may be crystallizable in a subsequent annealing process. The 2nd layer is applied onto the 1st layer at a temperature above the m.p. of the 1st layer polymer, and the **fiber**-free layer is

useful for bonding the **fiber**-reinforced composite to other materials. Four 125-μm-thick Vitrex **PEEK** (Tg 143°) prepregs containing 68% uniaxially aligned carbon **fibers** were assembled so that the **fibers** in 1 layer were oriented 90° to the **fibers** in the neighboring layer, and the assembly was laminated at 400°/0.7 MPa with a **50-μ m** polyether-polysulfone (PES, Tg 220°) film. Pressing 2 pieces of this laminate together at 300°/10.13 bar with the PES surfaces in contact produced another laminate with good adhesion.

IC ICM B29C067-14
ICS B32B027-00; C08J005-04
CC 38-3 (**Plastics** Fabrication and Uses)
ST polyether polysulfone laminate; carbon **fiber** reinforced PEEK laminate; polyether polyketone carbon reinforced laminate; adhesive polyether polyketone reinforced laminate
IT Adhesives
(polyether polysulfones or polyether polyimides, for **fiber** -reinforced thermoplastics, for composites)
IT Carbon **fibers**, uses and miscellaneous
RL: USES (Uses)
(thermoplastics reinforced by, adhesive layers for, for composites)
IT Polyimides, uses and miscellaneous
Polysulfones, uses and miscellaneous
RL: USES (Uses)
(polyether-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyimide-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polysulfone-, adhesive layers, for **fiber**-reinforced prepregs, for composites)
IT 61128-24-3
RL: USES (Uses)
(adhesive layers, Ultem 1000, for **fiber**-reinforced prepregs, for composites)
IT 71148-53-3
RL: USES (Uses)
(adhesive layers, for **fiber**-reinforced prepregs, for composites)
IT 31694-16-3, PEEK
RL: USES (Uses)
(carbon **fiber**-reinforced, adhesive layers for, for laminates)
IT 7440-44-0
RL: USES (Uses)
(carbon **fibers**, thermoplastics reinforced by, adhesive layers for, for composites)
IT 25667-42-9
RL: USES (Uses)
(prepregs, for composites, adhesive layers for)

L39 ANSWER 55 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1989:214261 HCAPLUS
DN 110:214261
TI Creep- and wear-resistant PTFE compositions without loss of excellent characteristics peculiar to PTFE
IN Umemoto, Noboru
PA NTN-Rulon Industries Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63286458	A	19881124	JP 1987-121645	19870518 <--
PRAI	JP 1987-121645		19870518 <--		

AB Title compns., useful for sliding and sealing parts, contain PTFE, heat-resistant **fiber** powders, and aromatic poly(ether ketones). Thus, TFM 1700 (PTFE) 70, MF-β (glass **fiber**, average diameter 3 .mu.m) 15, and finely powdered Victrex PEEK 150P [aromatic poly(ether ketone), average **particle** diameter 15 .mu.m] 15 parts were dry mixed, premolded at 450 kg/cm2, and heated at 360° for 3 h to prepare a calcined molding. The test pieces therefrom showed compressive creep deformation (140 kg/cm2 load, 24 h) 1.2 (transverse) and 0.8% (longitudinal), frictional coefficient 0.21, wear coefficient 5.2 + 10-10 cm3/kg-m, and tensile strength 150 kg/cm2, and tensile elongation 222%, compared with 3.7 and 1.6%, 0.35, 154 + 10-10 cm3/kg-m, 134 kg/cm2, and 215%, resp., for controls containing 80 parts TFM 1700 and 20 parts TISMO-D 101.

IC ICM C08L027-12
ICS C08L029-00

CC 37-6 (**Plastics** Manufacture and Processing)

ST creep resistance PTFE compn; wear resistance PTFE compn; heat resistance glass **fiber** reinforcer; polyether ketone binder PTFE **fiber**

IT Abrasion-resistant materials
(heat-resistant powdered **fiber**-reinforced PTFE containing aromatic poly(ether ketones), creep-resistant)

IT Glass **fibers**, uses and miscellaneous
RL: USES (Uses)
(heat-resistant, PTFE reinforced with, containing aromatic poly(ether ketones), creep- and wear-resistant, MF-β)

IT Polyketones
RL: USES (Uses)
(polyether-, aromatic, binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear-resistance)

IT Polyethers, uses and miscellaneous
RL: USES (Uses)
(polyketone-, aromatic, binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear-resistance)

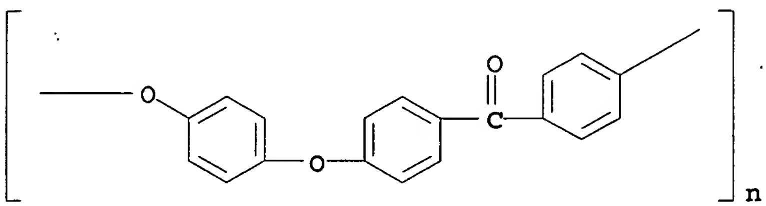
IT Synthetic **fibers**
RL: USES (Uses)
(potassium titanate, aminosilane-coated, TISMO-D 101, heat-resistant, PTFE reinforced by, containing aromatic poly(ether ketones), creep- and wear-resistant)

IT **31694-16-3**, Victrex PEEK 150P
RL: USES (Uses)
(binders, for PTFE reinforced with heat-resistant powdered **fibers**, for creep- and wear resistance)

IT 9002-84-0, PTFE
RL: USES (Uses)
(reinforced with powdered heat-resistant **fibers**, containing aromatic poly(ether ketones), creep- and wear-resistant)

IT 104381-87-5, Hostaflon TFM 1700
RL: USES (Uses)
(reinforced with powdered heat-resistant **fibers**, containing aromatic

poly(ether ketones, creep and wear-resistant)
IT **31694-16-3**, Victrex PEEK 150P
RL: USES (Uses)
(binders, for PTFE reinforced with heat-resistant powdered **fibers**
, for creep- and wear resistance)
RN 31694-16-3 HCAPLUS
CN Poly(oxy-1,4-phenyleneoxy-1,4-phenylenecarbonyl-1,4-phenylene) (CA INDEX NAME)



L39 ANSWER 56 OF 56 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1988:571647 HCAPLUS
DN 109:171647
TI Polyether-polyketone compositions with good plating properties
IN Tsutsumi, Toshihiko; Goto, Yoshihisa; Takahashi, Toshiaki; Ochi, Hiroyasu
PA Mitsui Toatsu Chemicals, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63118363	A	19880523	JP 1986-48226	19860307 <--
PRAI	JP 1986-48226		19860307 <--		

AB Compns. having good heat resistance and mech. strength, useful for elec. and automobile parts, etc., are prepared from aromatic polyether-polyketones 100, K titanate **fibers** 2-60, and alkaline earth metal carbonates (e.g., Ca or Ca Mg carbonate) 2-30 parts. A mixture of Victrex **PEEK** 150P 100, Tismo D 20, and $CaCO_3$ 5 parts was extruded to give a sheet which had tensile strength 1020 kg/cm2 and, after chemical and elec. plating with a **30-.mu.m** Cu layer, had a good appearance, surface roughness 0.04 µm, and adhesion of Cu 1.3 kg/cm2, vs. 1310, bad, 0.17, and 0.4, resp., with glass **fibers** instead of Tismo D.
IC ICM C08L071-00
ICS C08K003-24; C08K003-26
CC 37-6 (**Plastics** Manufacture and Processing)
Section cross-reference(s): 42
ST potassium titanate **fiber** polyether polyketone; calcium carbonate polyether polyketone; metalization polyether polyketone; copper plating polyether polyketone; adhesion copper polyether polyketone
IT Coating process
(electroless, of copper, on polyether-polyketone containing **fibers** and fillers)
IT Polyketones
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(polyether-, aromatic, moldings, containing **fibers** and fillers, for metalization)
IT Polyethers, uses and miscellaneous
RL: PEP (Physical, engineering or chemical process); PROC (Process)

(polyketone-, aromatic, moldings, containing **fibers** and fillers, for metalization)

IT Synthetic **fibers**
RL: USES (Uses)
(potassium titanate, polyether-polyketones containing, for metalization)

IT 7440-50-8, Copper, uses and miscellaneous
RL: USES (Uses)
(coating by, of polyether-polyketones containing **fibers** and fillers)

IT 471-34-1, Calcium carbonate, uses and miscellaneous 7000-29-5
RL: USES (Uses)
(fillers, polyether-polyketones containing, for metalization)

IT 31694-16-3, Victrex PEEK 150P
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(moldings, containing **fibers** and fillers, for metalization)

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